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LECTURE II.*

In my first lecture the share of organic disease of the heart and great vessels to be ascribed to syphilis was assessed at 5 to 15 per cent., and reasons were given for believing that this is a direct relationship; the more syphilis, the more aortic disease. For this reason, males more often show signs of cardiac syphilis than do females. There is usually a latent period of 20 to 25 years between the primary infection and the onset of cardiac symptoms. In this, cardiac syphilis resembles neurosyphilis. Different aspects of cardiac disease were reviewed in their relation to syphilitic infection, with results that I have for convenience arranged in Table IV.:—

TABLE IV.

Forms of cardiovascular disease.	Percentage caused by syphilis.
Aortic aneurysm—	
Thoracic ,,	75
Abdominal ,,	35
Aortic regurgitation	30
Cardiac pain (transient)	15
Cardiac infarction	1–3
Ventricular failure	20
Heart-block	10
Auricular failure	2

To-day we have to construct from a series of case-notes a composite picture of cardio-aortic syphilis as the clinical observer sees it. In a majority of the 103 cases whose records are under review, the *symptoms* that brought the patients to seek advice were cardiac. In a minority other lesions—cerebral thrombosis, tabes, and so forth—stamped them as syphilitic, and this led to an investigation of the cardiovascular system, with the result that physical signs in these few cases preceded symptoms. For the most part, however, symptoms came first and signs lagged behind. I recollect one remarkable exception to this rule in the case of a man of 47, the master of a small vessel, who went to get his life insurance policy increased when he came ashore. To his surprise and indignation this application was rejected on the score of heart disease. Refusing to believe this, he consulted his doctor, who referred him to me for confirmation of a diagnosis of aortic regurgitation. Unmistakable signs were found and, as his Wassermann reaction was positive, we gave him a course of treatment with iodide of potassium, mercury, and novarsenobenzol. He went back to his vessel, still free from symptoms and openly sceptical about his cardiac lesion; but a few days later he failed to come on deck one morning, and was found dead in his bunk. This sequence is exceptional. The rule is that the patient feels something amiss, the principal symptoms of onset being dyspnœa on exertion and præcordial pain; he goes to his medical man and is found to present signs of heart disease. The three great cardiac symptoms—dyspnœa, pain, and œdema—appear in that order, both in sequence and frequency. Dyspnœa, noted in 85 instances, is an early symptom; so is pain, complained of by 58 patients; but œdema, together with other signs of ventricular failure, is only seen later. It was recorded in 43 of my 103 cases. The paroxysmal dyspnœa noted by Keefer and Resnik and other observers has been seen in several of my patients, and my experience tallies with theirs in that this symptom has been much more frequent in syphilitic than in rheumatic lesions of the aortic valves. I should have said, however—though I have not subjected this to the test of statistics—that these paroxysms of dyspnœa are seen even more often in persons with ventricular defeat ensuing on long-continued hyperpiesis. This clinical fact—the occurrence of periodic dyspnœa in these two conditions, hyperpiesis and cardio-aortic syphilis—seems to me a striking exemplification of Fraser's proposition that the chief factor in the production of cardiac dyspnœa is a failure in the delivery of blood to the periphery and therefore to the medulla; for it is in these two kinds of heart disease that the left ventricle is most signally defeated.

Pain in the præcordium was a prominent symptom in 58 cases—i.e., in more than half. There are two or three points worthy of note about it. First, it seems to me that the "angina of decubitus" as contrasted with "the angina of effort" is relatively common in cardiac syphilis; commoner, that is, than in hyperpietic and decrescent syndromes. A good example of this was seen lately in the case of a man of 40, recently under my care in the hospital.

He was admitted under a diagnosis of pneumonia, on the score of dullness with other appropriate signs in the left upper chest. This resolved very unwillingly, and as it did so he developed pain in the right shoulder and across the chest. It was of the characteristic pressing or squeezing type and made him pale and anxious, and although it was aggravated by movement it arose and continued during rest in bed. The triple rhythm so characteristic of serious injury to the ventricular wall was heard for several days, the pulse became alternating, and there was some œdema of the back. His reaction to the Wassermann test was strongly positive, and his progress under the appropriate treatment happily confirmed the diagnosis.

In this case also another feature of the cardiac pain of syphilis—its tendency to an atypical distribution—was exemplified. In one respect, however, the case was unusual, since there was a suspicion of the infarction syndrome about it. The points essential to a confident diagnosis of cardiac infarction appear to me to be, first, a period of severe and persistent præcordial pain; and, second, the addition of new physical signs indicative of change in the texture of the cardiac wall. This syndrome has only once in my experience been seen in an unmistakable guise in this group of 103 cases of cardiac syphilis. This contrasts strikingly with its relatively high incidence in cardiosclerosis of the senile or decrescent type—15·1 per cent. of a group of over 300 cases. Let me make it clear; in cardiac syphilis pain without immediate sequelæ is commoner, while symptoms of the kind that accompany cardiac infarction are much rarer, than in the degenerative types of myocardial disease.

Physical Signs.

The signs may conveniently be grouped under three headings: the aorta and other great vessels, the cardiac valves, and the muscular wall of the heart. I have been a little surprised to find that I only noted ten examples of *aortic aneurysm*—one of them

*The second Lumleian Lecture, 1930. Lect. I. appeared last week.

abdominal, the rest thoracic—among these 103 patients. My impression is that one sees fewer cases of thoracic aneurysm than formerly, but the Registrar-General's returns, though they show some remarkable fluctuations in the annual death-rate from aneurysm, furnish no clear evidence of a decline.

Since the subject of intrathoracic aneurysm was recently expounded here by the late Dr. de Havilland Hall,[23] I propose to say no more on its clinical features but to pass on to a word or two about non-aneurysmal dilatation of the aorta. This I noted in 32 other cases, but I feel sure that this figure is too low, and that if it had been possible to subject all my private patients, as all my hospital patients are subjected, to skiagraphy, it would have been a good deal higher. Increase in the width of the aortic dullness, or of its shadow, or both, is of particular value in the diagnosis of those difficult cases in which there are no signs of valvular or myocardial disease to explain symptoms of cardiac insufficiency. An interesting paper by Beretervide[5] furnishes examples of the application of skiagraphy to the diagnosis of aortitis in congenital syphilis. Detection of a widened aorta is, however, not essential to a diagnosis of cardiac syphilis. Recently we had in the wards a man who had complained of substernal pain ever since a car had knocked him down and broken some ribs. This pain was increased by exertion, he was easily made breathless, and his pulse pressure was low, but there were no physical signs beyond a moderate accentuation of the second sound to the right of the sternum, and his aortic shadow was not widened. Nevertheless, the Wassermann test was definitely positive. In this instance we noted that highly characteristic sign, accentuation of the aortic second sound. It is usually of a lower tone than that which is heard in hyperpiesis, and when it is noted in the appropriate context, and in a person whose blood pressure is not raised, it helps to confirm a diagnosis of cardiac syphilis. It is often found in patients with tabes dorsalis and other nervous lesions and may then persist without further development for years. Even so, however, one cannot look at a section of the aortic wall that has been attacked by syphilis without realising that here alone, in a loss of arterial elasticity, the cardiovascular system has suffered a serious impairment of efficiency.

The series includes one example of syphilis of the pulmonary artery, a woman of 39, who exhibited the Ayerza syndrome. That the lesion was syphilitic was proved by the discovery of posterior sclerosis in the cord. This case has been fully reported in a paper by Clarke,[8] Hadfield, Todd, and myself, and is included in an excellent summary of the whole subject recently published by Dorothy Hare[24] and Joan Ross, from whose conclusions I quote a passage which is in accord with my own views. They say:

> "A well-defined group of cases exists in which arterial disease is confined or largely confined to the pulmonary circuit. These cases differ from other cases with arterial lesions in the lesser circuit in that there is no antecedent pulmonary, cardiac, or bronchial lesion. Syphilis is by far the most important ætiological factor in older patients. Primary non-inflammatory sclerosis of unknown ætiology is found in younger patients. In the syphilitic cases the lesions in the intrapulmonary arteries take the form of an obliterative arteritis, usually most severe in the smaller branches and arterioles. This condition leads to a raised blood pressure in the lesser circuit. Dilatation and hypertrophy of the main pulmonary artery follows, with atheroma of the right and left pulmonary arteries and larger branches, whether the latter show inflammatory lesions or not. The right side of the heart becomes greatly dilated and hypertrophied. Clinically the cases are characterised by dyspnœa, cyanosis, and hæmoptysis, and in the later stages by progressive congestive heart failure with a regular pulse."

Three times, in patients with no evidence of aneurysm, I noted inequality of the brachial tensions, but in none was there the gross asymmetry recorded in syphilitic aortitis by Laignel-Lavastine[54] and Vinlich. It is, however, by no means limited to that disease. I have seen several examples in patients with arterial lesions that appear to be degenerative and not infective, and at the present time there is a man, aged 62, attending my out-patient department, suffering from the angina of effort and also from an intermittent limp; his systolic brachial pressures are grossly unequal—240 in the one arm, 180 in the other. This man is proved free from syphilis by every test that we can apply. Lian,[37] Dreyfus, and Puech express the opinion that arteritis interfering with the blood-supply to the upper limbs is more likely to be syphilitic than a corresponding disorder of the lower limbs. Even so, however, it is to be remarked that among the seven cases fully reported by them in which a diagnosis of subclavian arteritis was made, only two were proved syphilitic in origin. One physical sign which they describe is a systolic murmur heard on auscultation in the depths of the supraclavicular fossa and separated, by a zone in which no bruit is heard, from the systolic murmur usually heard at the base of the heart. This subclavian murmur, they say, is not transmitted to the axillary or brachial arteries. In one case under his care in the Tenon Hospital Prof. Lian demonstrated to me this murmur, which was clearly heard and separated easily from that at the base of the heart.

Signs of some form of *aortic valvular disease* were noted in 63 cases. In 54 this is recorded as regurgitation, in two as obstruction, in seven as regurgitation with obstruction. The logical means of discriminating between the two appears to me to lie in correlation of sphygmomanometric readings with the auscultatory signs. Take, for example, the case of a man of 56 admitted to the wards on account of præcordial pain and dyspnœa. The sounds heard at the aortic base were those of obstruction rather than regurgitation, for the systolic murmur was loud and accompanied by a thrill, while the diastolic murmur was at times scarcely audible; yet the minimum arterial pressure was only 50 mm. Hg, with a maximum of 125—a disturbance of the normal proportions which would lead me to judge that his valves were guilty rather of incompetence than of obstruction.

Some observers say that they find the aortic diastolic murmur liable in a number of cases to appear and then to disappear, and this inconstancy is ascribed to variations in the width of the aortic ring, variations which are thought to arise from a weakening of the aortic wall by disease. I note that Sir Thomas Horder remarks that this is contrary to his experience; that the aortic diastolic murmur, when once it comes, comes to stay. So at all events it has been with my cases, though when the murmur was first heard in one or two instances it was very faint and apt to be inaudible except under favourable conditions. Horder also alluded to the sudden and gross increase in the loudness of the murmur that occurs when an aortic cusp is ruptured, and illustrated this by reference to a dramatic example. I had no instance of this in my series, but examination of the aortic cusps in the syphilitic heart affords ample evidence of the likelihood of this disaster. The perforations that Corrigan figured and described as "reticulations" are often seen at the commissural ends of the cusps, and may perhaps be ascribed to the concurrence of two factors—tightening of the base of the cusp with starvation of its tissues.

A mitral systolic murmur was noted 24 times in my patients; in 14 it accompanied signs of a lesion of the aortic valves and in 10 it occurred alone. In these 10, as well as in the others, it seemed to me probable that the incompetence was muscular and not valvular, a belief that was verified post mortem in the case of a man who had a mitral systolic murmur throughout the three years during which he was under observation. His mitral valves were normal, but the auriculo-ventricular channel was widely stretched. In one other case, that to which I have already alluded in discussing lesions of the pulmonary artery, a diastolic murmur was heard to the left of the sternum. The

patient was very blue and distressed and I thought the murmur indicated mitral stenosis, but was puzzled because the rhythm of the heart was normal. She died the next day and the pulmonary origin of the murmur was then disclosed.

The fact that this murmur was heard to the left of the sternum reminds me of a statement made some years ago by Hoppe-Seyler, to the effect that in aortic incompetence of syphilitic origin the diastolic bruit is heard loudest to the right of the sternum, whereas in leakage caused by rheumatic endocarditis the diastolic murmur is best heard to the left of the sternum. I believe that this rule is broadly true and agree with the explanation offered—namely, that whereas the syphilitic lesion of the valves is usually accompanied by a dilatation of the aorta which conducts the vibrations up to the chest wall at the second right interspace, that of rheumatism is not thus complicated, and the vibrations are, therefore, heard best in the neighbourhood of the valves themselves, to the left of the sternum.

Interference with the *muscular functions* of the heart is a prominent feature of cardiac syphilis. It is because the disease has this faculty that it is so dangerous. The means by which it effects these injuries must be debated when we come to survey the morbid anatomy; to this, however, an analysis of the modes of myocardial disturbance will serve as an introduction. The total arrhythmia of auricular fibrillation was observed in eight cases, and in addition to this there were two verified and one probable example of flutter. This is rather a high proportion of auricular disturbances. Juster[30] and Pardee noted three examples in 50 cases. In Vela's[54] series of 105 cases examined electrocardiographically there were six examples of fibrillation. In my series there was no obvious difference, otherwise, between the hearts that fibrillated and those that did not. In five of the eight the aortic valves were leaking—a proportion almost exactly the same as that observed in the series as a whole.

Interference with conduction of the stimulus from auricles to ventricles was observed in six instances, three of these being examples of block of the main bundle varying in degree from time to time. Of the others, one displayed the electrocardiogram of a lesion of the right main branch of the bundle, while in the other two the auriculo-ventricular interval was lengthened. This last group would perhaps have been much larger if electrocardiograms had been taken in all cases, yet Juster and Pardee's 50 cases only yielded two examples of lengthened conduction interval and none of actual block. Of Vela's 105 electrocardiograms from cardiosyphilitics three showed block of the main bundle and two of the right branch.

There were signs of increase in the size of the left ventricle in 80 of the cases. It seems to me useless to pretend to discriminate here between dilatation and hypertrophy, for there is no disease of the heart in which these two aspects of ventricular increase are more often or more inseparably combined. In 20 cases there were signs of the gross form of myocardial inadequacy that has been entitled by Parkinson[41] and Bedford "heart failure with normal rhythm," and by French writers "ventricular failure," a term also used by Herapath[11] and myself in a review of different modes of cardiac breakdown. The principal features of this state are œdema below the waist-line, alternating pulse with narrowing of the pulse pressure in some instances, weakening of the impulse and of the cardiac sounds, with a bruit de galop in some cases. This form of failure is notoriously insidious in its evolution, and the signs enumerated are not discovered until it is already far advanced. Does electrocardiography furnish any earlier hints of its approach? My own experience is too small to furnish a reply to this, but some interesting data have been collected. For example, Dr. J. H. Follows, of Liverpool, in some observations which he was good enough to discuss with me, noted alterations in the QRS and the T parts of the electrocardiogram 40 times in 147 cases of syphilis. It is true that in most cases these alterations were slight, but I believe they are worthy of attention. I have tabulated these (Table V.), together with other electrocardiographic data, including an unpublished series collected by Dr. M. A. Cassidy, of which he has kindly made me free.

TABLE V.—*Electrocardiographic Changes in Cardiac Syphilis.*

Author.	Total cases.	P abnormal.	P-R long.	QRS abnormal.	T abnormal.
Early syphilis:					
Cassidy ..	12	0	0	Low voltage, 3. R aberrant, 1.	0
Follows ..	68	0	0	Low voltage, 2. R aberrant, 5.	8
Turner[53] and White ..	50	No gross abnormality.			
Late syphilis:					
Cassidy ..	28	3 Fib., 1. Flut., 1.	0	Low voltage, 11. R aberrant with abnormal.	T = 8.
Follows ..	73	Flut., 1.	1	Low voltage, 1 R aberrant, 15.	9
Vela ..	105	Fib., 6.	S.bl.3 B.bl.2	7	9
Juster and Pardee ..	50	,, 3	2	20	37
Coombs ..	20	,, 1	2	4	5

Fib. = fibrillation; Flut. = flutter. S.bl. and B.bl. = Simple and branch block.

If any broad generalisation can be made from these widely divergent results it is that unmistakable departure from the normal is seen in an appreciable percentage of the electrocardiograms from cases of late cardiac syphilis. Among these observations we may particularly note that in Juster and Pardee's series the T wave was abnormal in 74 per cent. and of a "coronary" type of aberration in 18 per cent. This last they thought they could correlate, by post-mortem observation, with occlusion of the coronary orifices. I doubt, however, whether the evidence of coronary disease derived from electrocardiography is as valuable in syphilitic infection as in the degenerative lesions of the coronary vessels.

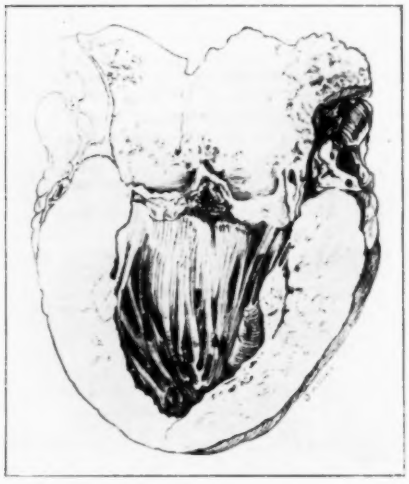
THE CLINICAL PICTURE.

At this point we may pause to summarise and, so to speak, get into focus the clinical picture that has been drawn. What we see is a man just under 50 complaining of shortness of breath and often, also, of pain in the chest, usually excited by exertion, but sometimes also occurring spontaneously. If his symptoms have lasted any length of time there may be œdema about his ankles. Examination of the chest discloses the signs of enlargement of the left ventricle, and the chances are two to one that there will also be those of aortic valvular disease. There is a one in ten chance that he has an aneurysm of his thoracic aorta, and where this is not found there is an even chance that there will be some evidence of aortic dilatation. The cardiac rhythm is likely to be normal, but there is approximately one chance in ten that either a total arrhythmia or an alternating pulse will be noted. His electrocardiogram may show some drag in auriculo-ventricular or in trans-ventricular conduction, or an aberration of ventricular response such as we associate with coronary lesions. On inquiry he may furnish a history of syphilitic infection sustained twenty odd years ago; or his Wassermann reaction may be positive; or he may display other evidence of old syphilitic infection.

In my series of 103 patients these evidences of *other syphilitic lesions* were noted 26 times. The manifestation seen most often was tabes dorsalis, of which there were ten examples; add to this two and possibly three cases of general paralysis and three of internal ophthalmoplegia, and the tale of late parenchymatous syphilis mounts up to 16

cases. Focal lesions of cord and brain were noted two and three times respectively; there was one example of nerve deafness, one of optic atrophy, one of iritis, and two of choroiditis. Chronic glossitis was

FIG. 1.



An early case of *endocarditis lenta* superimposed on a syphilitic lesion of the aortic valves. The vegetations are seen to occupy the commissural ends of the cusps.

noted five times. This seems to me to fall within the same class, clinically and perhaps pathologically, with aortitis and tabes. Gummatous lesions of bone, liver, larynx, and scalp were found in nine cases. Two of the patients had syphilitic children and in three instances repeated miscarriage appeared attributable to a similar cause. I have seen no example of conjugal aortitis such as is recorded by Marañon.

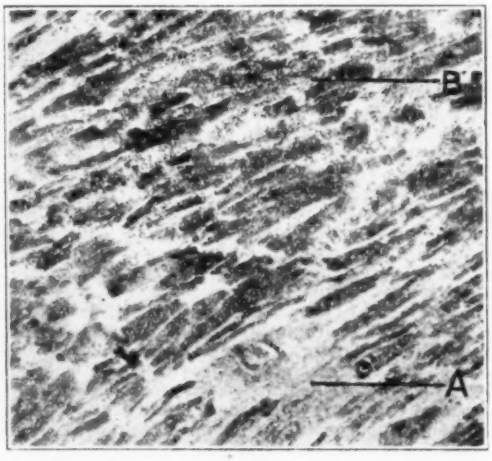
Certain other morbid associations are worthy of consideration here. These are more truly described as concomitants than as precursors. That the progress of cardio-aortic syphilis itself is not greatly furthered by them is, I think, proved by the fact that in *congenital syphilis* the aortic lesion appears at the end of a latent period no longer than that observed in the corresponding and exactly similar lesion of the acquired infection. In fact, the congenital infection often injures the aorta in an appreciably shorter time than that taken by the acquired variety, as I pointed out in the first lecture. It is true that this is not always so. The only two cases that I am able to quote from Bristol experience behaved in this respect as acquired syphilis does. The first case is one that was recorded in 1911 by Prof. J. A. Nixon, that of a young woman who died in the Bristol Royal Infirmary at the age of 20, after a few months of symptoms due to an abdominal aneurysm which ruptured behind the peritoneum. She had Hutchinsonian teeth and changes in the wall of the aorta of a syphilitic character. The second patient was also a young woman, aged 25, who was admitted to the Bristol General Hospital under my colleague Dr. Newman Neild, to whom, and to Prof. Geoffrey Hadfield, then pathologist to the hospital, I am indebted for notes. These show that when admitted she had Hutchinsonian teeth and was in fact treated as syphilitic from the second day after admission. Her symptoms were cerebral and became rapidly worse, killing her in a few days in spite of an operation for decompression. She had a gummatous infiltration at the base of the brain, and an aortitis of which Prof. Hadfield says that it is the cleanest and purest specimen of syphilitic aortitis that he has seen. The coincidence with an atheromatous change is not infrequent, and is very confusing to the morbid anatomist. In neither of these cases do I think there can be doubt either of the existence of an aortitis or of the syphilitic basis of that lesion. So far as the two examples quoted are concerned, the case for a belief in aortititis due to congenital syphilis seems to me complete. Sometimes this is slow in its evolution, as in another case related to me by Prof. Nixon. Here a maiden lady died at the age of 48 of thoracic aneurysm; there was as little doubt that her father had acquired a syphilitic infection as that she herself had not. On the whole, however, there is a larger proportion of early cases among the congenital than among the acquired syphilitics. For instance, there are the cases reported by Cummer[17] and Dexter, by Anderson,[4] and by Worster-Drought[60] and Danvers-Atkinson, wherein the ages at death were 5, 10, and 13 respectively.

Concomitants of Cardio-aortic Syphilis.

From such facts as these it seems probable that the virus can, unaided, bring about serious changes in the aorta within a period of less than 20 years, and that it is not necessary to invoke any *x* factor or factors as essential to the development of a syphilitic aortitis. On the other hand, it is, I think, quite clear that certain other agencies which are often convicted of an attack on the cardiovascular apparatus do from time to time conspire with the syphilitic virus in such a way as to hasten the downfall of those structures and functions which they attack simultaneously. It is not the syphilitic process itself so much as its consequences that they aid and accelerate. I am thinking particularly of four such agents: decrescent or atheromatous arterial disease, hyperpiesis, alcoholism, and diabetes. To this list may be added one other example, that of acute rheumatism.

The part played by atheromatous or senile *arteriosclerosis* I had always vaguely suspected; it is obvious that when these changes overtake a man they are going to make more difference to him, or at all events

FIG. 2.



Section of myocardium from a case of *endocarditis lenta* superimposed on a basis of cardiac syphilis. (A) replacement fibrosis due to syphilis; (B) polymorphonuclear leucocytosis caused by infected embolus from inflamed valve.

are going to be felt more quickly, if the elastic tissue of his aortic wall is already disintegrated by syphilis. But it was not until I had seen, in more than one of the hearts examined histologically, how syphilis and atheroma supplement each other that I understood how neatly and effectively these two destroyers

work together. It is not merely that in the wall of the aorta itself they overlap; here we may truly assign the leading part to syphilis, which attacks and injures the media in a way that the purely degenerative process is incapable of doing. It is not here, however, so much as in the coronary arteries that the dovetailing of these two morbid agencies is seen, for in the coronary vessels themselves it is atheroma that does the damage, the syphilitic lesion limiting itself to their orifices. In sections of many coronary trunks I did not once discover an infective arteritis, and in the twigs only once I discovered it; even when the aortic lesion was severe it always stopped short at the coronary openings.

FIG. 3.

Section of wall of left auricle, showing small granuloma beneath epicardium.

The relation with *high arterial tension* is perhaps of the same kind, though some observers think it goes deeper. In my own series I met with 15 patients who exhibited a systolic blood pressure of 200 mm. Hg or more. One might well dismiss this as due to nothing more significant than the fact that both aortic syphilis and raised arterial tension are diseases of middle-aged males, were it not for the arguments adduced by some writers, French physicians in particular, on behalf of a closer relation. Lian, for example, gave me some figures which show that in 29 per cent. of 291 persons with high tension the Wassermann test yielded a positive result.

Diabetes was discovered by Mitchell Bruce [8] to be a frequent accompaniment of syphilitic disease of the circulatory organs. I have not encountered a single example. Marañon [39] noted it 23 times in 140 cases of aortic syphilis, and insists on the importance of remembering this association whenever a patient with diabetes is being examined.

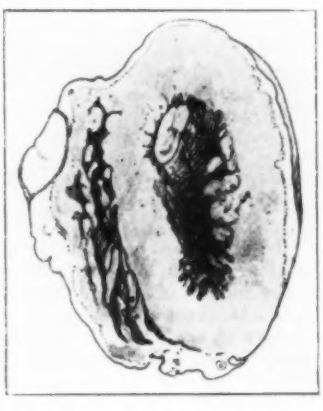
Alcoholic excess was recorded in 16 of my cases. The actual proportion is probably higher than this, but there is no proof of any causal relation—no proof, that is, of anything in the effects of alcoholic excess that favours the course of the syphilitic process. Yet it can scarcely be doubted of any of these three agents—hyperpiesis, alcohol, diabetes—that it is a powerful ally of syphilis in the reduction of the cardiac efficiency; the first, by increasing the load to be borne; the second, by its deleterious action on the myocardial cells; and the last, by ruining the nutrition of the arterial walls.

The effect of *acute rheumatism* on the syphilitic heart may be glanced at in passing. Some years ago I saw an interesting example of this. A man about 40, with old-standing aortic incompetence, syphilitic in origin, was attacked by acute rheumatism with pericarditis and quickly succumbed. There are several examples of this deadly association in the literature (von Glahn [56] and Wilshusen, Cabot [7]). It seems also as if congenital syphilis predisposes to severity in an intercurrent rheumatic carditis; at all events the two are sometimes associated, as in the case related in the first lecture, that of the congenital syphilitic girl, who displayed signs of mitral stenosis before the age of ten (see also Stolkind [48] and Fordyce [21]). On the other hand, the supervention of a syphilitic lesion on a rheumatic basis does not seem to be so serious.

One other disease that is associated with cardio-aortic syphilis owes that association to a different kind of nexus. *Endocarditis* is superimposed on the syphilitic picture in the same way and for the same reason that it is even more often superimposed on that of rheumatic heart disease. It is because the new infection, usually streptococcal, finds it easier to attach itself to a valve that has been made ready for it by some prior injury to its endocardial surface. This relation has been satisfactorily examined by Grant, Wood, and Jones. They say that small platelet thrombi occur with greatest frequency on the valves that are liable to subacute bacterial endocarditis; that this is due to local secondary change in thickened valves; and that in this clot the passing micro-organisms find board and lodging. In my own experience both rheumatic and congenital defects of the valvular surface furnish these opportunities of endocardial infection more often than does syphilis, which has not been identified as a predisposing cause in more than 5 per cent. of my cases of endocarditis. This figure is far below that given by some writers, for instance, Sumbal, [49] who found a positive Wassermaan reaction in 18 of 52 cases of endocarditis lenta. Among these 103 cardiosyphilitic patients of mine there were four who were found to have contracted an endocarditis superimposed on the syphilitic lesion (Figs. 1 and 2). The general behaviour of these cases is that of a slow endocarditis of the kind that is usually thought to be due to an alimentary streptococcus. In one of them it was clear that treatment with novarseno-benzol did good, but chiefly in the direction of suppressing the secondary infection, since fever and embolic symptoms disappeared while the liability to præcordial pain and the signs of aortic insufficiency persisted, and the patient died within a year after leaving the hospital.

These few remarks on the morbid influences that may supplement that of syphilis in its attack on the heart may be summarised by saying that atheroma, alcoholism, and diabetes act simultaneously with syphilis in lowering the vitality of the cardiac muscle; while streptococcal infection of the endocardium, itself in these cases a sequela of the syphilitic process, involves the patient in new perils, those of toxæmia and of embolism, while at the same time adding to the cardiac burden by accelerating the valvular failure.

FIG. 4.



(Not referred to in text.) Transverse section of heart showing calcified gumma beneath epicardium of right ventricle.

We are now brought to that point at which clinical investigation can carry us no further in elucidating the nature of the syphilitic attack on the heart. We have seen that in these 103 cases the damage was freely assigned to the aorta, the aortic valves,

and the cardiac muscle; facts that appear clearly in the following table, wherein are assembled some of the data that our clinical survey has yielded.

TABLE VI.

Total cases	103
Aneurysm, thoracic	9
,, abdominal	1
Aortic dilatation	32
Aortic valvular disease	63
Pulmonary dilatation	1
Cardiac pain (transient)	57
Cardiac infarction	1
Ventricular enlargement	80
Ventricular failure	20
Heart-block	3–6
Auricular failure	8–11

It now remains to see whether we can learn from the minute anatomy of these lesions how they are related to each other, and whence they come. The histological data that I propose to embody in the next lecture are derived from a study of 21 hearts, most of which have been subjected to a thorough examination—an examination, that is, of a dozen or more blocks, and of ten or more sections from each block. Three of these hearts were found in the course of that examination to furnish evidence of atheromatous, but not of syphilitic, change. This result deserves to be remembered when it is claimed that the naked-eye appearance of the lesion is a better criterion of its syphilitic origin than clinical evidence can furnish; for in all three hearts the changes resembled those of syphilis and were thought to be syphilitic by experienced observers. In another instance I was inclined to write the heart off as degenerative only and not infected, when I found, in the eighty-sixth section examined, a small granuloma beneath the epicardium covering the left auricle (Fig. 3). This prompted a fresh examination of the aorta, and the characteristic adventitial lesion was found. I ought perhaps to add that in none of the three pseudo-syphilitic cases was there any good clinical ground available for a diagnosis of syphilis; though the Wassermann reaction was strongly positive in a fourth case, that of a man of 67 who died suddenly in a surgical ward, and whose heart presented histological changes as like those of atheroma as of syphilis. Here I accept the verdict of the blood test and interpret the case as one in which the syphilitic attack had ended, leaving ravages which, with the help of the atheromatous process, sufficed to kill the man.

I was stimulated to examine these hearts because I did not find in the literature a completely satisfying answer to several questions. In the first place, why do syphilitic patients so often complain of cardiac pain yet so seldom die of cardiac infarction? Secondly, exactly how does syphilis prepare the endocardial surface for superimposed infections? Thirdly, how is the long gap between primary infection and the onset of cardiac symptoms filled in? Fourthly, what is the nature of the myocardial lesions of syphilis? This last question was prompted by examination of sections from a heart described by C. E. K. Herapath taken from a syphilitic patient with a progressive lesion of auriculo-ventricular conduction in which he found a destruction of the bundle of His so complete, and at the same time so selective, as to remind one irresistibly of system degenerations in the cord.

BIRKENHEAD AND WIRRAL CHILDREN'S HOSPITAL.—Mrs. Paget, wife of the Bishop of Chester, recently opened a new out-patients' department which has cost £15,000. The waiting-hall has been named after the late Mr. W. F. Rogers, of Wallasey, whose bequest provided a third of the cost; the laboratory has been given by Mr. and Mrs. Holttum in memory of their son.

DISTRIBUTION OF RADIATION FROM CLINICAL RADIUM TUBES.

ILLUSTRATED BY PHOTOGRAPHY.

BY S. RUSS, D.SC.,

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AND

DOROTHY F. CLEPHAN.

(From the Barnato-Joel Laboratories, the Middlesex Hospital.)

THE series of photographic tests on radium tubes which is the subject of this paper was begun with the idea of obtaining some kind of picture of the distribution of the radiation from tubes arranged in certain simple geometrical patterns.

In cases of malignant disease, the treatment is planned with a view to giving a dose of radiation which does not fall below the necessary minimum for all parts of the growth. The laying out and spacing of the tubes is a matter for careful consideration, and it is generally assumed that the distribution of the radium contained in the tubes is more or less uniform throughout their internal lumen. Auto-photographic pictures are useful in pointing out those parts of the field where inequalities occur in the intensity of radiation resulting from any particular plan. Those illustrated here refer to plans such as might be used for the introduction of radium tubes into breast tumour.

Two schemes were adopted for the photographs illustrated: (*a*) in which the tubes were arranged like spokes in a wheel, and (*b*) in which they were in parallel lines. In Fig. 1, A_1 and A_2 are auto-photographs with the photographic plate parallel to the plane of the tubes at a distance of 7 mm. Schemes A_1 and A_2 were combined, the planes of the tubes being 1·4 cm. apart, and the photograph A_3 was obtained by putting the plate halfway between the two. The effect of the irradiation shown on this plate is far from uniform. In a further set of exposures which are not illustrated here, the photographic plane in each case was 2 cm. from the plane of the radium tubes and the irregularities in density were naturally much less. It is interesting to compare the general result of the one scheme, A_3, with that of the other B_3.

The series B_1, B_2, and B_3 (Fig. 2) was carried out with the photographic plate 7 mm. from the radium tubes, arranged in parallel formation; B_3 is a combination of B_1 and B_2.

Inequalities in Radium Tubes.

Inspection of these photographs shows that the concentration of radium inside the individual tubes is not always uniform. Photographic tests on individual tubes have shown that in some cases it can safely be said that the inequalities in strength of radium along the lumen of the tubes are such as to militate against their proper therapeutic use. For purposes of comparison, an exposure was made of 12 6 cm. radon needles arranged as in scheme A, and photograph A_4 (Fig. 3) shows the equality of distribution typical of radon containers.

A few samples of auto-photographs of individual tubes are reproduced in Fig. 4. The drawing on the top left hand side is a scale drawing of the tubes. A is a 6 cm. tube filled with radon; B, C, and D are

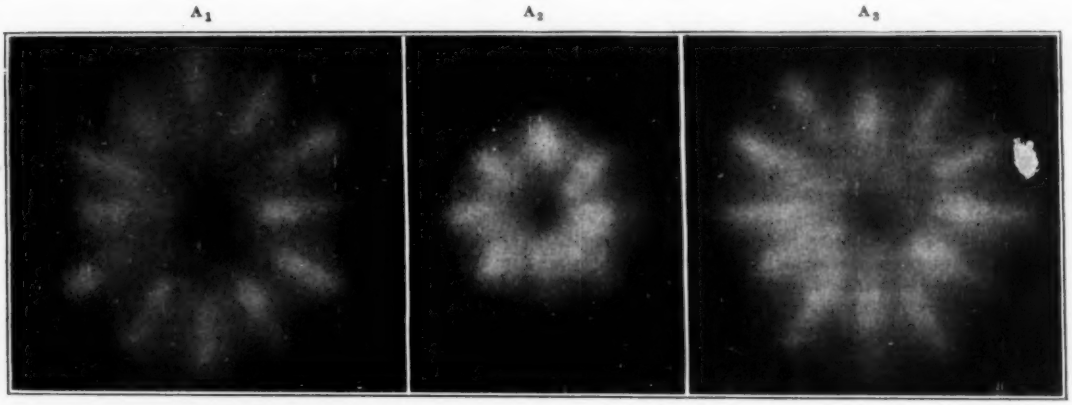
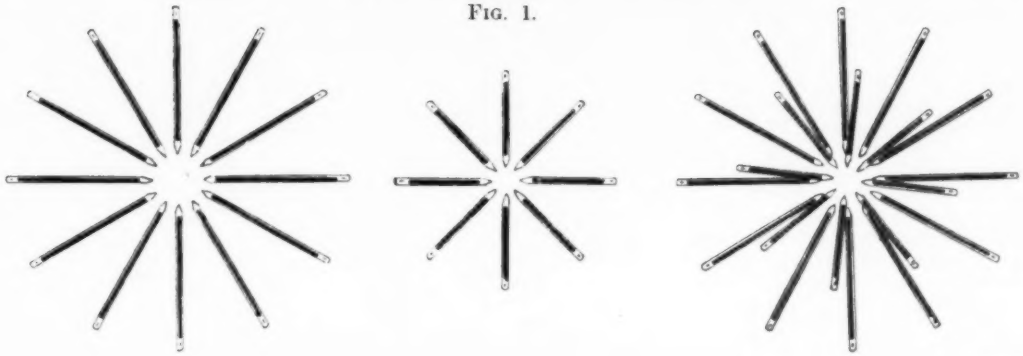


FIG. 1.



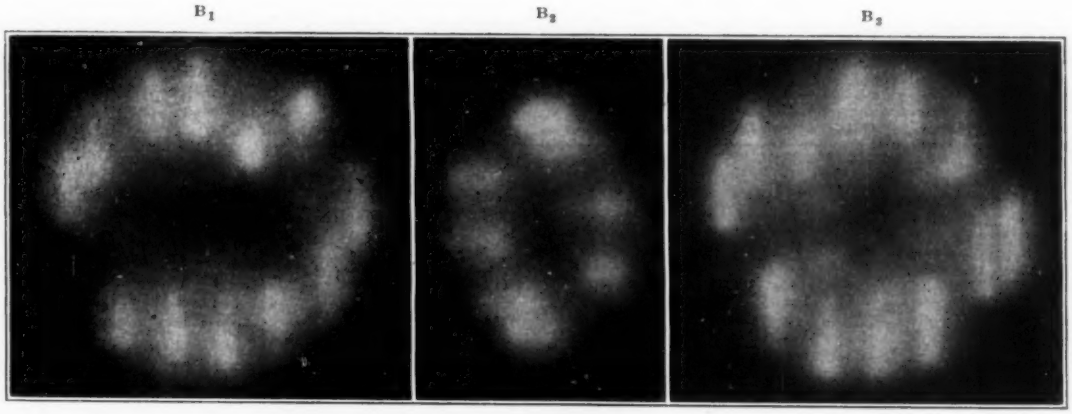
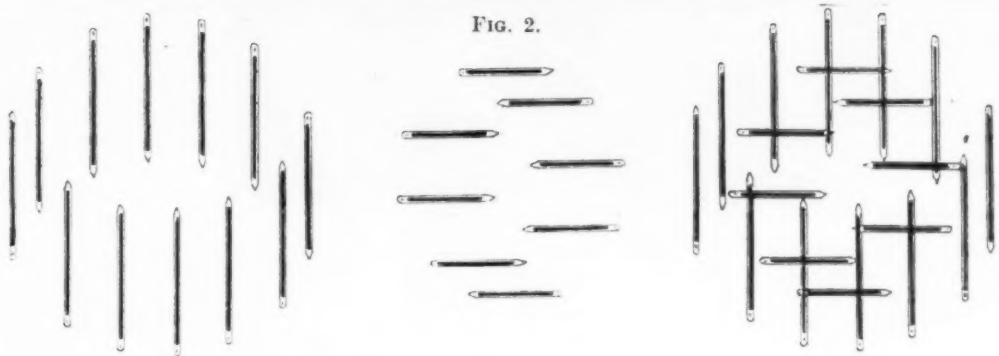


FIG. 2.



radium tubes. B is good; the distribution in C is patchy, but these inequalities are not very serious when the radiation effects at one or two centimetres distance are being considered. C is a badly filled tube, nearly two centimetres out of the six being practically devoid of radium.

The construction of the platinum radium tubes and so-called "needles" is well known, but will, perhaps, bear repetition here. The terms "tube" and "needle" are used somewhat indiscriminately, "needle" being generally applied to the sharp-pointed tubes of narrow lumen and small content which are designed particularly for surgical insertion. Tubes and needles are at present constructed in two parts—a hollow cylindrical shaft, and a separate part with a plug end made either to screw into the shaft or to fit it exactly. The separate part is sometimes the point and sometimes the head end. Filling from the point end of the tube might be judged to be the better method in the case of needles for surgical use, as more strain is put upon the head during manipulation. The points are rounded, trocar, or torpedo in shape, according to the purpose for which the tube is designed, and the individual taste of the clinician. The eyelet holes are drilled through the head of the tube, and countersunk to prevent friction to the thread; and for the same reason the holes are sometimes slotted after the fashion of a bodkin. The shaft contains the required quantity of radium element, but, owing to the demand for tubes of low concentration, the radium has to be diluted with an inert powder, and this dilution has probably made uniform distribution more difficult to effect than it is in the case of the purer material. The sealing of radium containers is now invariably done with gold, which has been found to be the most reliable form of solder. A small band of gold is fitted round the junction on the shaft, and welded into the platinum.

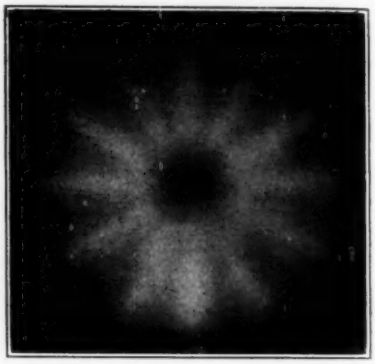
The stopper and plug at one end, and the point at the other, make some "dead space" inevitable; they due to the radium salt shifting about inside the tube. The exposures of the photographs have been such as to bring out clearly any irregularities in filling.

Ionisation measurements of different sections of certain tubes have been carried out, and these corroborate the photographic effects.

Tube D (Fig. 4).—Ionisation measurements have been taken of each nominally active 1·5 cm. of the tube; 0·7 cm. at either end is not included in these measurements as this amount of the tube is "dead" having practically no lumen. 0·7 cm. (point), —; 1·5 cm. (next to point), 13 per cent.; 1·5 cm. (middle of tube), 47 per cent.; 1·5 cm. (next to eyelet end), 40 per cent.; 0·7 cm. (eyelet end), —.

FIG. 3.

A4



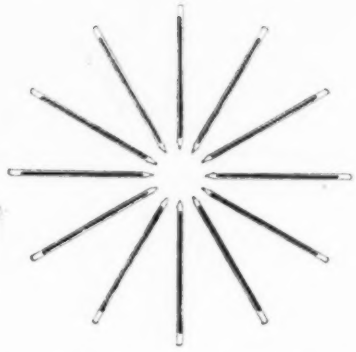
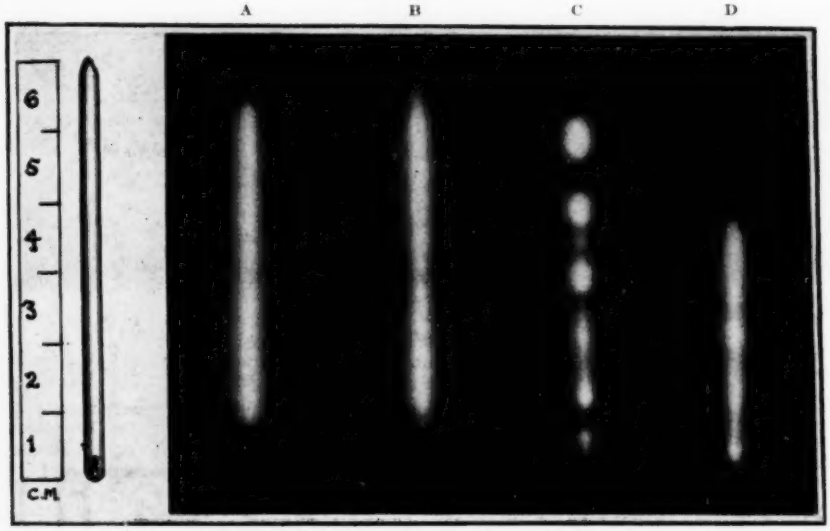


FIG. 4.



Method of Test.

Radium centres may wish to reassure themselves about their own radium tubes. Photographic tests are comparatively simple to carry out, but a brief account of the method we have used may be of service.

For the individual tubes ¼-plate special rapid duplitised X ray films were used. The radium tubes were placed between parallel lines plotted out upon the paper wrapper to mark the limits of the external length, and the number of each tube was written above it. Before development, both numbers and position marks were carefully copied on to the side of the film which had been in contact with the tubes; and prints were taken from the reverse side in order to get the positive pictures in proper sequence. The exposures were for two minutes, with the tubes laid upon the films. The geometrically arranged schemes

but the non-uniformity of distribution under discussion is a matter of technique in filling the tubes. The photographs shown in this paper are the result, almost entirely, of the gamma radiation emitted by the radium in the tubes; they are in no way due to contamination of the outside of the tubes, nor are

A and B were taken upon X ray plates at the distances specified in the text, the exposures being 15 minutes. Development of films and plates was carried out with Metol Hydroquinine developer at a temperature of about 18° C., for five minutes in all cases. A standard exposure and development was also given for the prints.

Purchasers of radium may find it necessary in the future to insist upon guarantees relating to the distribution of the radium in tubes, as well as certificates of purity and quantity.

THE INTRADERMAL TUBERCULIN TEST.

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The intradermal injection of diluted tuberculin as a diagnostic procedure was suggested over 20 years ago by Mantoux[1] and Mendel.[2] This method of applying the tuberculin test possesses several advantages over the numerous other variations which have been employed since Koch's discovery of the properties of tuberculin, and it is becoming more widely adopted, especially in the field of veterinary surgery.

The ideal skin test should possess certain essential attributes. It should be simple to perform in a standard manner, and preferably a single injection should be sufficient; the dose employed should be the same in all cases, for a test which involves two or more injections of increasing doses at intervals is cumbersome and may not be appreciated by the patient.

The result should be easy to interpret and must not be harmful to the patient, either on account of the size of the local response or owing to severe general reaction. In addition, the result should convey some clear indication of disease or of its absence; a test which yields positive reactions in a large proportion of healthy adults is of little assistance in clinical diagnosis. The intradermal tuberculin reaction is clearly capable of fulfilling some of these requirements when employed under favourable conditions; in each case an exact quantity of tuberculin can be injected with certainty into the deeper layers of the skin so that the resultant reactions in a series of cases are strictly comparable, and the extent and significance of the reaction can be assessed with a considerable degree of certainty. It remains to consider whether the results have a definite diagnostic value and whether the reactions are likely to prove in any way harmful.

During the past two years I have been engaged upon a clinical investigation of lymphadenoma at St. Bartholomew's Hospital under the direction of the Rose Lymphadenoma Research Committee.

Some observers have considered that lymphadenoma is really an atypical variety of tuberculosis affecting chiefly the lymphatic glands, and, although the evidence in support of this view is not convincing, it was thought desirable to test a series of patients suffering from this disease by means of the tuberculin reaction, in order to obtain further evidence for or against the theory. After some preliminary comparison of the merits of the various possible methods, the intradermal method was selected for its simplicity. In addition to cases of lymphadenoma, tests were performed on cases of proved tuberculosis and cases apparently quite free from tuberculous infection, in order to control the results obtained in the series under observation. The object of this paper is to place on record a satisfactory method of performing the test, together with a discussion of the results.

Technique.

In performing the test, the following essentials must be kept in mind. In the first place the quantity of material injected must be sufficient to give positive reactions where such reactions should occur, yet it should not be so great as ever to cause severe reactions. The diluted tuberculin is apt to deteriorate, and for this reason it is preferable that the dilutions should be freshly prepared before use. Lyle Cummins[3] gives three weeks as the maximum length of time after which the diluted fluid should not be used, but in the present series the diluted tuberculin was never kept for more than 48 hours, thus ensuring the elimination of any possible factor of deterioration in the standardisation of the reactions. Lastly, the site selected for the injection should be carefully considered, not only from the point of view of ease of injection but also in order that a strongly positive reaction shall not interfere with the functions of the limb. After considerable preliminary work a standard method was evolved which has since been rigidly followed.

PREPARATION OF THE MATERIAL.

A single batch of Koch's old tuberculin (O.T.) was obtained from Messrs. Allen and Hanburys, and this has been used throughout. When required, 0·1 c.cm. of this material is diluted with sterile normal saline solution to a concentration of 1 part in 1000 of fluid. Each cubic centimetre of the diluted tuberculin therefore contains 1 mg. O.T. It is not necessary to add any preservative if the dilution is always carried out shortly before the injection is made; indeed, in a test of this nature it is unwise to introduce any foreign material which might of itself cause the skin to react. At the same time a similar quantity of the control solution, supplied by the same firm, is diluted in exactly the same way, and two tuberculin syringes with ordinary intradermal needles are sterilised by boiling. This procedure naturally produces some degree of blunting of the points of the needles, but as far as intradermal work is concerned, this is rather an advantage, as the points are less likely to slip through the skin into the subcutaneous tissues, a mishap particularly to be avoided in performing the test.

INJECTION INTO THE PATIENT.

The dose eventually selected as the best and consequently standardised was 0·1 c.cm. of the 1 in 1000 dilution, equivalent to 0·1 mg. O.T. Greater doses were injected in some of the earlier cases, but the resultant reactions were apt to be unduly severe, while lesser doses were frequently found to produce equivocal responses. The most suitable site for the injection is the palmar surface of the forearm, midway between the elbow and the wrist. It is accessible and the skin is fairly thick and easily immobilised. Injection of tuberculin in the region of the elbow-joint should be avoided. Occasionally quite severe reactions were obtained even with 0·1 mg. O.T., but in no case was any inconvenience caused to a patient. The control solution should be injected at least 2 in. on the proximal side of the tuberculin injection. This procedure must always be carried out; in two cases out of the 374 recorded here, a false positive reaction occurred.

Both materials are injected into the deeper part of the skin, raising a small wheal which disappears within half an hour. Care must be taken to avoid leakage of tuberculin into the subcutaneous tissues, as unexpected temperature reactions may develop in tuberculous patients if this should occur. The actual technique of the injection differs in no respect from that of intracutaneous injections in general.

THE REACTION.

The reactions were always examined 48 hours after the injection had been given, as it was found that the maximum change had occurred at this period in the majority of cases. On three occasions, however, a positive reaction was found to appear between the third and sixth days. A positive reaction occurred in two controls, consisting in each of an area of erythema about 1 cm. in diameter.

The tuberculin reaction in one of these cases was precisely similar, and there was no reason to suspect tuberculosis from the clinical examination. In the other case the tuberculin reaction yielded the typical positive result in a case of proven tuberculosis. In the remaining 372 cases the control was entirely negative.

The typical tuberculin reaction possesses two distinct features: in the centre of the lesion there is a pale, round or oval area of swelling, palpable to the finger and frequently tender, and surrounding this there is usually an area of erythema. The relative sizes of these two features vary considerably in different cases. In strongly positive reactions there may also be some local irritation of the skin, but general reactions with rise of temperature were only observed in three cases, in which there was consequently a suspicion that there had been a subcutaneous leakage of tuberculin. Separate notes were taken of the extent of the areas of swelling and erythema. It was found that in some cases they were dissociated, either occuring without the other, and the cases in which this phenomenon was noted were studied further. It was then discovered that whereas a simple erythema without swelling was associated with cases which were either doubtful or apparently non-tuberculous, swelling without erythema, on the few occasions on which it occurred, was almost invariably associated with proven tuberculosis. The importance of this point in reading a reaction is obvious. Attention must be paid only to the area of swelling and erythema alone should be disregarded. As has already been mentioned, the two positive control reactions consisted of an area of erythema only, and thus the essential element of a positive tuberculin reaction was absent. The estimation of the degree of the reaction is rather arbitrary, but an area of swelling less than 1 cm. in diameter is reported as "weak positive"; between 1 and 2 cm. is the usual result and may be classed as "positive." Any reaction in excess of this is rare, but may be classed as "strongly positive."

Results.

The results have been classified in accordance with the clinical conditions. A large number of cases was also tested in which the presence or absence of tuberculosis could not be satisfactorily determined, and these cases have accordingly been excluded from consideration.

Group 1 consists of cases of proven tuberculosis. In all the cases of this group either tubercle bacilli were demonstrated or at least typical giant-cell systems were present in sections. The cases may be further subdivided as follows:—

(1) Chronic pulmonary tuberculosis: of 54 cases tested, 49 yielded positive and 5 negative reactions.

(2) Acute tuberculosis: in this condition the intradermal test is usually negative. There were five cases in this group and one reaction was weak positive, the remaining four being negative. One of these cases was quite instructive. The test was performed on a girl aged 6, who was suspected to be suffering from tuberculous mediastinal glands and the result was positive. Two months later the patient was readmitted with tuberculous meningitis and, on repetition of the test, a negative result was obtained.

(3) Tuberculous infection of lymphatic glands: 15 cases were tested and all gave positive reactions. It was in this group that the most marked reactions were obtained.

(4) Tuberculosis elsewhere in the body: of seven cases tested, six gave positive reactions and one a negative.

The total number of proven cases of chronic tuberculosis tested was therefore 76, and a positive reaction was obtained in 70 cases, equivalent to 92·1 per cent. of the total.

Group 2 consists of cases which were almost certainly tuberculous yet in which the final proof was lacking. In this group are classed cases of pleurisy with effusion, cases diagnosed clinically as tuberculous peritonitis, and a few cases of bone and joint disease. Of the 58 cases tested, 51 gave a positive and 7 a negative reaction.

Group 3 consists of cases in which no evidence of tuberculosis could be found. This group is the most difficult to select, for it is almost impossible to be sure that there is no tuberculous lesion in the body, even on careful post-mortem examination. The cases consisted of apparently healthy individuals and cases of malignant disease, bronchiectasis, disease of the blood-forming organs, and other cases in which the presence of tuberculosis could be reasonably excluded. In this control series of 189 cases, 59 yielded positive and 130 negative reactions; it should be noted that the cases in this group were mostly adults. In this series of apparently non-tuberculous cases, therefore, only 31·2 per cent. yielded a positive result.

Group 4 consists of the cases of lymphadenoma which were the main object of the investigation. Forty-two patients were tested, and of these 7 gave positive and 35 negative reactions. In three of the positive cases and one negative case there was evidence of the coexistence of a tuberculous lesion. Apparently, therefore, if any significance is to be attached to the test at all, the tubercle bacillus plays no part in the causation of lymphadenoma.

Four additional cases, not included in the groups considered above, were tested. Each showed X ray evidence of calcification in lymphatic glands which appeared to be presumptive evidence of a healed tuberculosis, and none showed any evidence of activity. In three the reaction was quite negative, whereas in one, clinically identical with the others, the reaction was strongly positive.

Discussion and Conclusions.

The object of this paper is to describe a standard technique for the intradermal tuberculin reaction and to consider the diagnostic value of the test. The prognostic significance depends upon a number of complicated factors which cannot be considered here except in so far as they have a bearing on the actual result of the test. In proved chronic tuberculosis the test is usually positive, whereas in apparently non-tuberculous cases the percentage of positive results is considerably smaller. The results of Cummins[3] suggest, however, that where the body is reacting well to the toxin and overcoming the infection, the skin reaction may be weak or even negative, and this is supported by the negative reaction found in cases of apparently healed tuberculosis. It must be understood, however, that the size of the reaction is no sure guide to the activity or otherwise of the lesion and that, on the whole, the more severe cases, whose resistance is broken down, also tend to show little or no reaction. The significance of the delayed reaction is also not clear; it occurred twice in cases of lymphadenoma with no evidence of tuberculosis and once in a case of chronic pulmonary tubercuolsis with apparently good resistance. A positive result does not, of course, prove that the particular disease under investigation is necessarily tuberculous, for there is nothing to prevent a small hidden tuberculous focus coexisting with some more obvious lesion which is non-tuberculous.

The significance of the two elements commonly found in the positive reaction is obscure. It seems probable that the area of swelling is an anaphylactic phenomenon and therefore the result of a previous sensitisation to the toxins of the tubercle bacillus.

The area of erythema is not apparently a specific effect and may possibly be a reaction to the protein derived from the bodies of the tubercle bacilli, as distinct from their toxin; it certainly does not appear to have the same significance as the swelling, and it does not seem impossible that sensitisation should occur to the material of which the tubercle bacillus is composed in the absence of an actual infection by the organism with resultant sensitisation to its toxin. The result of the test, therefore, must be interpreted in conjunction with all the other evidence available. In cases of doubt a positive reaction will be one link in the chain of evidence; a negative reaction is of more value in the exclusion of tuberculosis.

The test by itself, however, does not prove a diagnosis, and failure to realise this fact is responsible for many clinical errors. The test, when employed with proper safeguards, may yield information of value if performed in suitable cases; its indiscriminate use as a mainstay in diagnosis is to be condemned.

In conclusion, I wish to express my thanks to the medical staff of St. Bartholomew's Hospital for their permission to perform the test upon the cases under their care, as well as for the great interest which they have evinced in the results obtained.

References.—1. Mantoux, Ch.: Comp. rend. Acad. des Sci., 1908, cxlvii., 355. 2. Mendel, Felix: Med. Klinik, 1908, iv., 402. 3. Cummins, S. L.: Brit. Med. Jour., 1929, i., 336.

CONTROLLED RECESSION OPERATION

FOR THE TREATMENT OF CONVERGENT STRABISMUS.

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Since Dieffenbach in 1829 divided the internal rectus muscle for the correction of internal strabismus, numerous new methods or modifications have been advocated and indicate the dissatisfaction of ophthalmologists with the available operative techniques. These surgical procedures consist briefly of either a tenotomy, a tendon lengthening, or a recession of the internal rectus muscle and a shortening, advancement, or tendon folding of the external rectus muscle, while any of the procedures on the internal muscle may be combined with any on the external muscle.

With any of these operations it is usually easy to put the eyes straight on the operating table, but there is a very definite element of uncertainty as to the ultimate result. It is, however, possible to form a very accurate estimate of the final result of the operation at the end of the first week, when the tendons have adhered to their new sites and the muscles have commenced to adapt themselves to the new conditions of balance. At this time:—

(1) If the eyes are still convergent they will probably: (*a*) remain so if there is full adduction; (*b*) go straight if there is moderate adduction; or (*c*) diverge if adduction is almost absent.

(2) If the eyes are straight they will probably: (*a*) remain so if there is full adduction; or (*b*) diverge if there is poor adduction.

(3) If the eyes are divergent this condition will probably increase, especially if the adduction is defective.

The fear of producing a paralytic divergence, owing to failure of the divided rectus to reattach itself to the globe, has made common the practice of under-correction on the operating table. In the operation I am about to describe, paralytic divergence is, for practical purposes, an impossibility, and it is easy to make secondary adjustments at the end of the first week—i.e., at the time when one is best able to judge what the final result will be.

The Operation.

After anæsthesia has been induced by drops of cocaine and adrenalin and a small injection of novocain and adrenalin at the site of the operation, a speculum is inserted and the patient is requested to abduct the eye. The conjunctiva over the insertion of the internal rectus muscle is picked up with fixation forceps, a vertical incision about 1 cm. long is made, and the conjunctiva is undermined as far as the inner canthus. Tenon's capsule is next opened at the upper and lower borders of the tendon and a strabismus hook passed beneath the tendon. The tendon and the anterior part of the muscle are defined by blunt dissection. A double-armed suture of No. 2 black braided silk is now taken and the needles are passed through the tendon from within outwards, as shown in Fig. 1. The needles are introduced about 3 mm. from the insertion of the muscle, and each takes a bite of about one-third of the breadth of the tendon. (It is usually quicker to use one needle only for this portion of the operation, going first from without in, then across the front of the tendon, and then from within out.)

Fig 1.

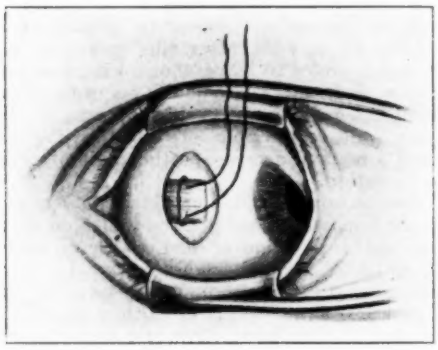
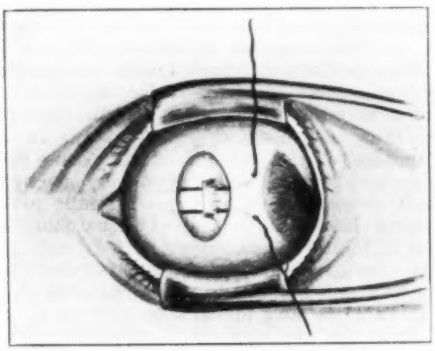


Fig. 2.



The hook is now withdrawn; the tendon is held forward by drawing on the sutures, and with a few snips of the scissors is divided about 1 mm. from the globe. The sutures are held by an assistant and a search is made for the lateral insertions, which are divided. The two ends of the suture are now passed through the episcleral tissue beneath the

insertion of the divided tendon and, slightly diverging, are brought out through the conjunctiva close to the limbus (Fig. 2). The conjunctival wound is carefully closed with two or three sutures of No. 0 silk. The long ends of the sutures are tied together, wrapped round a piece of lint, and fixed to the forehead with strapping.

The eye is lightly closed with a pad and strapping during the first 24 hours, but after that the dressings are removed during the day, though a pad is strapped on during sleep to prevent accidental pulling on the sutures. The eye should be irrigated every two or three hours during the day, and mild antiseptic drops, such as colloidal silver, should be instilled, while neoprotosil ointment is freely inserted before sleep. If rigid care is taken to ensure cleanliness by repeated dressings there is very little conjunctival reaction.

Between the fifth and seventh days the case is carefully considered. If the eyes are straight or have about 5 degrees of residual internal squint and there is good adduction, the sutures are removed; but if the eyes are divergent or if there is poor adduction the sutures are tied, the procedure being as follows.

The eye is anæsthetised with cocaine and adrenalin drops and a pledget of cotton-wool soaked in the solution is placed on the globe over the site of the operation and left, or renewed, until the hyperæmic conjunctiva is blanched. While the anæsthetic is acting the sutures are unravelled and cleaned by painting them with weak iodine. When anæsthesia is complete, the small sutures uniting the conjunctival wound are removed and the first double turn of a surgical knot is tied on the main sutures. This knot is gradually tightened, the effect being noticed between each tightening until the desired effect is produced, when the knot is completed. This suture should be removed at the end of a further five days. When both eyes have been operated upon, the secondary suture is, of course, first tied on the eye which possesses the poorest adduction.

The operation presents no difficulties, and can be performed on comparatively young children (from 10 years upwards) with only those difficulties inseparably connected with their varying temperaments. It is not a suitable operation to perform under general anæsthesia, as it is necessary for the patient to make active movements during the tying of the secondary sutures in order to judge their effect. In this connexion a curious difficulty sometimes arises in children which I have not noticed in adolescents. Some children refuse, however much persuaded, to move their eyes in the direction of the muscle that has been operated upon. In these cases an idea of the amount of adduction present can be gauged by the amount of convergence present. Although these children will not attempt to make the desired lateral movement, I have found they have no difficulty in converging.

I have found no difficulty from sutures cutting out; in fact it is possible to insert them through the conjunctiva alone and for this to give an adequate hold. This was the method I originally adopted, inserting the sutures after the method of the Richard Williams advancement operation. I found that at the end of a week the conjunctiva was so firmly adherent that it completely failed to come down and left the suture in direct contact with the cornea; this method had therefore to be abandoned.

The operation can be combined with any operation on the external rectus of the same eye if the tenotomy alone is insufficient to correct the squint, but I much prefer to repeat the operation on the second eye. If the entire correction of a high degree of internal squint is to be borne by one eye only, the new insertion of the internal rectus must be so far back that poor adduction and divergence are likely to ensue. With this operation it is the diliberate policy moderately to over-correct the squint upon the operating table. If the squint is 15 degrees to 18 degrees or under, an operation on one eye will usually suffice, but if the squint is over 18 degrees it will be necessary to operate on both eyes. The complete division of both internal recti will over-correct most internal squints.

A difficulty arises in moderate squints which are under-corrected by a single tenotomy and heavily over-corrected by a double tenotomy. I find the best method with these cases is to do the full operation on one eye and to allow a moderate recession of the other internal rectus. This can easily be brought about by immediately tying the suture of one eye. The suture is tied in the way already described, the first turn of the surgical knot being tightened until only the desired amount of over-correction is present, when the knot is completed.

The Secondary Sutures.

When the sutures are tied on the seventh day the maximum amount of secondary correction obtainable cannot be definitely stated, but I think it is from 7 degrees to 10 degrees in each eye. I find it is usual for a slightly greater correction to be manifest on the day after tying the secondary suture than when the patient is on the table. While it is possible to obtain a correction of this amount on the seventh day, a much greater amount can be obtained by tying the secondary suture on the fifth day. In young patients—that is to say, from 10 to 16 years old—it is safer to tie the secondary suture on the fifth day if there is much over-correction present. In these cases union between the divided tendon and the globe often takes place more rapidly than in older patients, and I have once or twice been disappointed in the amount of secondary correction that I have been able to obtain. This, however, was before I adopted the practice of immediately tying the main suture if marked over-correction followed the tenotomy. In one case, which was inadvertently left for two weeks, no result was obtained by tying the sutures in both eyes. The amount of secondary deviation which develops during the 12 months after the operation is very slight, but I prefer to leave about 5 degrees residual internal squint, and this should be proportionately increased where there is a high degree of hypermetropia, the correction of which with glasses produced a marked decrease in the angle of deviation before operation.

If the sutures hold, paralytic divergence is obviously impossible, but I have found no tendency to this and I have never had to tie a secondary suture on this account. The reason is, I think, that the main sutures, although they have no traction effect on the internal rectus until they are tied, have nevertheless a directional effect and keep the divided tendon applied to the globe. None of the cases I have yet operated upon have shown any tendency to divergence, but that a small percentage will do so seems inevitable when we remember that it is not uncommon for internal squints to straighten themselves even after 20 years of age, and sometimes even to go on to divergence without operative interference.

It is obvious that those cases which become straight naturally would have become divergent whatever operation had been undertaken. It seems

absurd deliberately to under-correct at the first operation with the intention of probably doing a second operation of a similar nature at a later date, when it is no more difficult to readvance a well-united internal rectus, if subsequent divergence should make this necessary. If the internal rectus is well united and there is good adduction, this should only be necessary in that very small percentage of cases that would have become straight without operation.

Paralytic divergence, through failure of the divided rectus to reunite with the globe, is of course a very different matter, owing to the great difficulty of correcting it by operation; it must be regarded as a surgical disaster.

The most, I think, that we can expect of any squint operation is that in every case it will enable us fully to correct the strabismus and yet leave the eyes with a practically full range of mobility. I have performed this operation on 126 cases and, with the exceptions mentioned, have always been able to obtain this result.

THE CAUSES OF DEATH AMONGST DIABETICS.

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With the introduction of modern methods of dietary control and the use of insulin for suitable cases, the outlook of the diabetic has been totally changed. It is sometimes said that under efficient treatment the prognosis is so improved that the patient's expectation of life is as good as that of a normal individual. For the majority of diabetics this may be so, but the occasional occurrence of unexpected deaths raises the question of how far the general statement is true. It is too early yet to answer the question from national statistics [4] for, as has been pointed out, improved treatment will enable many sufferers to live longer. The incidence of diabetes is stated to be increasing, but this increase may be more apparent than real, and may in part be due to the increased interest which has been directed to the subject in the last few years. It has been suggested that a proportion of diabetic deaths are avoidable and should not occur under modern conditions.[1] The present investigation has been undertaken to examine the question and to find out the dangers which face the diabetic.[5]

The deaths reported in this paper are taken from a clinic of about 2000 cases of diabetes mellitus. For several reasons it is not possible to work out a death-rate for these cases. An attempt is made to keep in touch with all diabetics who have been seen in the clinic in order to ensure that they remain sugar-free at all times, and so to prevent recurrence of symptoms or the development of complications. It is hoped also that information of prognostic value may be collected in this way. In spite of this follow-up service, and even with the help of an efficient social service department, it is difficult to keep track of all the patients. Some go off diet, feel comparatively well for a time, and return later with their original symptoms fully developed. Others cannot be traced; undoubtedly a number of these have died. Such elements of uncertainty make statistical investigation difficult. Sufficient information on the causes of death has been collected for 150 cases, and an analysis of this material is presented below. A few of the patients died in hospital within a short time of admission. About half were in-patients for a time, and the others were only seen at the clinic as out-patients. The majority of deaths occurred at the patients' homes or in some other institution.

Effect of Age, Sex, and Habit.

A superficial survey of the causes of death shows that they may be grouped as follows: (*a*) cardio-vascular conditions, 43 (28·7 per cent.); (*b*) infections, 37 (24·7 per cent.); (*c*) improper treatment, 21 (14·0 per cent.); (*d*) cancer, 13 (8·7 per cent.); (*e*) tuberculosis, 11 (7·3 per cent.); (*f*) acute non-surgical abdominal conditions, 9 (6 per cent.); (*g*) miscellaneous, 16 (10·6 per cent). Coma in itself is not to be regarded as a primary cause of death but rather as a contributory complication. Fifty-nine cases (39·3 per cent.) developed acidosis and died in coma; the majority did not show this symptom.

The *age* at death ranged from 8 to 74, 68 per cent. of the cases being over 45 years of age. The return of the Registrar-General for 1927 shows that in Scotland 81·2 per cent. of diabetics who died were over 45, as compared with 63·3 per cent. of deaths from other causes. Joslin [2] has found the same thing in his cases, and points out that diabetes is very largely a disease of advanced life; indeed, the average age at death of his latest group of diabetics is actually three years later than that of the average citizen in the same district.[3] A striking feature in our series is the remarkably small number of young cases, only 14 being under the age of 25. This is probably accounted for by the readiness with which young patients respond to treatment by insulin. The age at death appears to have a considerable influence on the question of whether coma will occur or not. For our whole series the average age at death was 50·5 years, while for the coma cases it was 37·4 years, as compared with 59 years for those who did not develop coma. As will be seen in Table II., the average age of death in some of the non-coma groups is considerably higher. Of the 48 cases under 45 years of age, 38 developed coma (64·4 per cent.), while of the 81 patients over this age only 21 died in coma (35·6 per cent.). The influence of age in this respect is well shown in Table I.

Table I.—*Percentage of Deaths due to Coma at Different Age-periods.*

Age-period.	Total deaths.	Coma: deaths and percentage.	Age-period.	Total deaths.	Coma: deaths and percentage.
0–14	2	2 (100·0)	55–64	35	7 (19·4)
15–24	12	11 (91·6)	65–74	35	2 (5·7)
25–34	18	13 (72·2)	75 +	5	0
35–44	16	12 (75·0)			
45–54	26	12 (46·2)		150	59 (39·3)

It will be seen that in earlier years practically all cases developed coma before death, while in later life this tendency diminishes and finally disappears. The danger of developing coma is inversely proportional to the age of the patient. A similar observation has been made by Joslin.[1]

Sex.—The series shows a preponderance of females, 86 (57·3 per cent.), to 64 males (42·7 per cent.), a ratio similar to that found in the national statistics (66·9 per cent. to 33·1 per cent.). The excess of females is greater amongst the patients over middle life, and especially amongst those dying of cardio-vascular conditions. The same phenomenon is shown

by the statistics for Greater London quoted by Joslin.[2] The coma cases are practically equally divided—29 males to 30 females.

Habit.—The habit of body during the period of treatment is also of importance in relation to the development of coma. Nineteen cases (12·7 per cent.), 17 of whom were women, were recorded as obese; none of these developed coma. This fact is in keeping with the clinical observations that the fat diabetic only rarely shows acetone in the urine, even when on a low calorie diet. From the nature of the disease it is probable that many of the 54 patients of normal weight had previously been obese. The 77 thin individuals included 39 males and 38 females. Coma developed more frequently (64·4 per cent.) amongst those who were under weight.

Duration and Treatment.

Duration of Disease.—Joslin [1] has suggested that nearly all diabetics who die in the first year of their disease die of coma, and has put this forward as good proof that coma is avoidable. Elsewhere [3] he suggests that diabetes is milder the longer it lasts, though in this statement there is an obvious fallacy. Our figures show that of 54 cases of under two years' duration 51·8 per cent., of 68 between two and five years 35·3 per cent., and of 26 who had had diabetes for more than five years 19·2 per cent. developed coma. the duration of adequate treatment appears to be of little importance.

Type of Treatment.—It is to be expected that the more severe cases requiring insulin would show a higher percentage of deaths and of coma before death, but the matter is complicated by the number of deaths amongst mild diabetics of advanced years. Insulin as well as dietary restriction was required by 72·7 per cent. of all subjects, and the proportions are practically identical in both coma and non-coma cases. On the other hand, the faithfulness of the patient in carrying out instructions is of the greatest importance. In 57 of the patients dietary control was unsatisfactory for some time before death; 20 of these cases were under 45 years, and all except one, who was aged 40, developed coma (95 per cent.), while of those over middle age 12 out of 37 suffered from coma (32·4 per cent.). Improper dieting appears to be very serious for the young but of less consequence among the aged.

Causes of Death.

The cardiovascular group is the largest; no patient in this section was under 45 years and the average age of death was high. Fifteen of these patients died from cerebral hæmorrhage, 11 from heart failure following arterio-sclerosis, and 8 after gangrene. The heart failure cases include only two in which the cardiac disease was of long standing. The common factor in this group is vascular degeneration, which was also prominent amongst the other non-coma cases. In a series of post-mortems on 51 diabetic subjects, Wilder [7] reports a high incidence of arterio-sclerosis (71·4 per cent.) and of renal damage. Joslin [3] points out that, as the occurrence of fatal coma is reduced by improved treatment, there is a steady increase of cardiovascular and renal deaths.

Malignant disease accounted for 13 deaths and none of these patients showed coma. Cancer of the head of the pancreas was confirmed by post-mortem examination in two cases, and in two others who died jaundiced a similar diagnosis was made. One patient after a long history of atrophic cirrhosis developed a nodular enlargement of the liver, which was diagnosed as a primary cancer. Another patient on whom a post-mortem was performed was found to have a cancer of the pylorus affecting neither the liver nor the pancreas. A diagnosis of cancer of the stomach was made in two cases, and of the colon (one case), and of the uterus (one case), but there was no opportunity for confirming these diagnoses. In addition, there was one example of carcinoma of the tongue, one sarcoma of the jaw, and one cancer of the cervix. Thus in most cases the malignant disease was probably unrelated to the diabetes. It is to be expected, of course, that a group of people of this age-distribution would show a number of deaths from cancer. One individual who died from gangrene also suffered from scirrhus of the breast.

Sepsis of various kinds, other than gangrene, is given as the immediate cause of death in 37 cases (18 males, 19 females), of whom 20 developed coma before death (54 per cent.). The importance of age in relation to this question is shown by the following figures. Under 35 years of age, 90 per cent. of the septic cases developed coma; between 35 and 65 the proportions are about equal (coma in 55·6 per cent.); while in 9 cases over that age coma was absent.

Phthisis (ten cases) and Pott's disease (one case) caused 7·3 per cent. of the deaths. It is interesting to note that the average age of death in this group was 55·4 years, and that only one of these cases was below 40, although tuberculosis used to be considered the scourge of the young diabetic. Coma was absent in this group. Miscellaneous causes of non-coma deaths include pernicious anæmia (two cases); peptic ulcer with fatal hæmatemesis (two cases); hæmochromatosis (one case); and accident (one case).

Breaking diet, inability to take food, or failure of the insulin supply, led directly to 21 deaths from diabetic coma (13 males, 8 females). Nine of these patients were over 45.

TABLE II.—*150 Diabetic Deaths.*

A. Non-coma Deaths (91).

Cause of death.	Cases.	Percentage of all deaths	Average age.
Senility	8	5·3	73·4
Gangrene	8	5·3	66·0
Arterio-sclerosis and heart failure	11	7·3	63·7*
Cerebral hæmorrhage	15	10·0	61·8
Chronic nephritis	1	0·7	57·0
All cardiovascular	43	28·6	65·1
Respiratory infections	9	6·0	59·5†
Acute abdominal sepsis	4	2·7	59·5‡
Septicæmia	2	1·3	70·0
Erysipelas	1	0·7	38·0
Cellulitis	1	0·7	26·0
All sepsis (non-coma)	17	11·4	57·5
Tuberculosis	11	7·3	55·4
Malignant disease	13	8·7	59·5
Pernicious anæmia	2	1·3	43·0
Peptic ulcer—hæmatemesis	2	1·3	36·5§
Acromegaly	1	0·7	62·0¶
Hæmochromatosis	1	0·7	27·0
Accident	1	0·7	30·0
Total non-coma	91	60·7	59·0

B. Coma Deaths (59).

Breaking diet	21	14·0	38·4
Gastro-intestinal upset	9	6·0	36·9
Focal sepsis	7	13·3	36·0
Respiratory infections	13		40·7
Hæmatemesis	1	0·7	25
Unspecified coma	8	5·3	32·7
Total coma	59	39·3	37·4
All deaths	150	100	59·5

* 1 myxœdema. † 1 with parotitis; 1 acromegaly.
‡ 2 appendicitis; 2 peritonitis. § 1 with carbuncle.
¶ 1 also died of influenza.

Deaths from coma followed non-surgical *gastro-intestinal upset* in nine cases. In all but one of these the preceding treatment had been entirely satisfactory. The fatal illness in these cases came on suddenly and was of short duration. It was characterised by nausea and persistent vomiting, usually accompanied by

intense abdominal pain and sometimes by diarrhœa. Symptoms of this sort may occur as the result of ketosis in diabetes, but in these cases we believe that the gastro-enteritis preceded the onset of the coma. In a further group of eight cases coma is given as the cause of death without mention of any precipitating factor.

Amongst the 150 fatal cases there were a number in which other ductless glands were involved besides the pancreas. There were two cases of acromegaly (aged 53 and 62) and one of myxœdema (aged 59), none of whom developed coma. Four patients who also suffered from hyperthyroidism appear amongst the deaths from coma, two as the result of respiratory infections, one from breaking diet, and one not specified. They were aged 30, 35, 37, and 40.

Discussion.

Diabetes mellitus should be regarded as a symptom-complex rather than as a single disease, since it is probable that it may be produced by several different pathological processes. The figures just examined suggest that a diagnosis of "diabetes" covers at least two distinct conditions, an impression which has also been formed in the clinic. The two types may almost be distinguished by the age of onset of the symptoms. The young cases often give a history of some immediately preceding infective process, with a rapid development of symptoms. The initial disturbance may be considerable and the disease appear severe, yet under satisfactory conditions a good deal of recovery is often possible. Although favourable when properly managed, these cases require careful supervision in order to avoid trouble. It is essential for them to follow a strict régime, for the dangers of relaxation of effort are greater in them than in diabetics over middle life. Sepsis, gastro-intestinal upset, and major errors of dieting, all tending to development of acidosis, are the dangers especially to be feared. Acetonuria and coma are readily produced in this type of case, but should be absent under adequate treatment or, where developed, should be controlled by insulin, death being thereby avoided. In this "toxic" type the patients may be somewhat under weight, but are usually otherwise healthy. Degenerative processes are absent and there is no history of obesity. The sex-incidence is about equal in patients under the age of 45 (26 males, 22 females), as we have already shown in the thin subjects and those dying of coma.

The second group of diabetics is distinguished from the first in several ways. As a whole, the patients are older; indeed, many might be regarded as long-lived. The diabetes of later life has long been recognised as mild in type and little liable to the complications found in younger cases. Usually it appears insidiously, the first sign being gangrene, eye trouble, or pruritus. The progress of the disease is slow and there is little tendency to acidosis. Amongst the outstanding features of this group are the prevalence of arterio-sclerosis, the occurrence of obesity, and the preponderance of females. The grossly overweight individual is commonly regarded as a potential diabetic,[3 6] and it may be that the metabolic disturbance which leads to obesity is closely related to that in diabetes. This form of obesity is more common in women and leads to high blood pressure and often to arterial damage. The high incidence of arterio-sclerosis in diabetes is usually regarded as evidence that it depends on the metabolic disturbance, but it is equally possible that the relationship is just the reverse. From a study of this type of diabetes it is our impression that the insidiously progressive vascular disease occurs first and leads to pancreatic degeneration in much the same way as it affects the kidneys. The mildness of this type may in some degree be due to the slower development of the lesion and to a gradual adjustment of the body to the altered conditions. Patients who suffer from this "degenerative" type of diabetes do not die from coma but from some other cause, often vascular. Like the other group, however, these patients also show a lowered resistance to infections, and under the influence of these the diabetes may become more prominent.

It will be observed that amongst the non-coma deaths there are a few who do not conform to the "degenerative" type. These include the patients who died of erysipelas (aged 38), cellulitis (26), hæmatemesis (29 and 44), one pernicious anæmia (29), the accident case (30), and possibly also the hæmochromatosis (27). In some of these cases death probably occurred too rapidly to allow the development of coma. When allowance is made for these cases, the average age of death of the non-coma patients is raised from 59·0 to 62·1 years.

Summary.

An analysis has been made of the cause of death in 150 cases of diabetes mellitus. Coma preceded death in 59 of the cases, being precipitated by sepsis, abdominal upset, or by faulty treatment. Deaths without coma were mainly due to cardiovascular lesions, to sepsis, to tuberculosis, and to malignant disease not necessarily involving the pancreas. The investigation suggests that the cases of diabetes may be grouped into two classes: (*a*) the "toxic" type in younger individuals with a tendency to develop coma; (*b*) a "degenerative" type, characterised by greater age, arterio-sclerosis, and a tendency to obesity. Treatment should be rigidly followed by all subjects under middle age in order to avoid the danger of acidosis. This danger is of lesser importance for the older diabetic, but in his case attention should be specially directed to the vascular system.

REFERENCES.

1. Joslin, E. P.: The Treatment of Diabetes Mellitus, London, 1924, p. 316.
2. Joslin: Bost. Med. and Surg. Jour., 1925, cxciii., 707.
3. Joslin: Amer. Jour. Med. Sci., 1928, clxxv., 472.
4. Rabinowitch, I. M.: Can. Med. Assoc. Jour., 1927, xvii., 1415.
5. Rabinowitch: Ibid., 1929, xxi., 524.
6. Anders, J. M., and Jameson, H. L.: Amer. Jour. Med. Sci., 1925, clxx., 313.
7. Wilder, R. M.: South. Med. Jour., 1926, xix., 241.

GLASGOW WESTERN INFIRMARY.—It is reported that upon a total expenditure last year of £90,783 there was a surplus of £3634. The average stay of each patient (12,521) was 18·18 days; in 1928 it was 20·05. In the David Elder Infirmary it was 19·96. The average cost per patient was £6 14*s.* 8*d.*, as compared with £7 18*s.* 3*d.* in the previous year. It is still impossible to proceed with the ophthalmic department, for which the money is in hand, in consequence of the continuance of the Rent Restrictions Act, the site being occupied by tenement houses belonging to the infirmary. The new X ray and electrical department, a section of which will be set apart for radium treatment, is nearing completion.

PROPOSED EXTENSION OF MOORFIELDS EYE HOSPITAL.—It has long been desired to enlarge the out-patient department of the London Ophthalmic Hospital, City-road, E.C., but space has been lacking. An opportunity now occurs of purchasing the adjoining cocoa factory, which would not only provide the means of extending this department, which deals with an average of 480 patients daily, but would afford additional scope for the post-graduate school, larger laboratories, the extension of research facilities, and a larger physico-therapeutic department. The purchase price of the factory is £4000, towards which £1200 is available, and the Lord Mayor, the vice-president, and Mr. T. W. Luling, the chairman, are appealing for the balance.

CLINICAL AND LABORATORY NOTES

INTERSTITIAL PREGNANCY IN A TUBAL STUMP

AFTER SALPINGO-OÖPHORECTOMY.

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Interstitial pregnancy is very rare. Werth, operating on 120 cases of ectopic gestation, saw no example of it, and Munro-Kerr saw one in 80 cases. The Johns Hopkins Clinic puts the incidence at 0·65 per cent. Still more uncommon are cases in which pregnancy occurs in the interstitial part of the tube after salpingo-oöphorectomy. After a survey of the literature at my disposal I can find only seven cases in any way comparable to that described here.

DESCRIPTION OF THE CASE.

The patient started to menstruate at the age of 16. Her periods were regular and painless, occurring every four weeks and lasting five days. Her children were 15, 12, and 4 years old. There had been no miscarriages. Five years ago she was operated upon after the rupture of an ectopic gestation. The right Fallopian tube and ovary were removed and she made an uninterrupted recovery. A year later she was delivered of a full-time child.

The last normal menses occurred five weeks before admission to hospital. A week before the patient had noticed a blood-stained discharge per vaginam, lasting only a few hours. The onset of this corresponded with the expected time of her period. For the last 14 days the patient had been aware of an uneasy dragging pain in her right side but had had no acute pain. At 4 P.M. on the day before admission she felt definite epigastric discomfort and nausea. At 7 P.M. she was seized with sudden right-sided pain of sufficient violence to double her up. She went to bed but the pain was severe throughout the night, during which time she vomited twice. At no time was there any loss per vaginam. Next morning she was sent to hospital by ambulance and arrived at 2 P.M.

On admission her temperature was 99° F., her pulse-rate 88, and her respiration-rate 24. She looked well and appeared comfortable. The mucous membranes were not blanched. The tongue was moist but covered with a white fur. The abdomen moved poorly on respiration but showed no rigidity. Hyperæsthesia was marked in the right iliac fossa. On deep palpation tenderness was elicited just above the mid-point of Poupart's ligament on the right side. On examination per rectum and per vaginam the patient complained of tenderness on the right side. Bimanually the uterus was felt to be slightly enlarged. The breasts showed no signs of activity.

On opening the abdomen at 3 P.M. the pelvis was seen to be full of blood, partly clotted and partly fresh and bright. Bearing in mind the previous operation, the left Fallopian tube was immediately palpated but found to be normal. The incision was extended downwards and the uterus brought into view, the whole organ being slightly enlarged. The fundus on the right side was definitely raised (Ruge Simone's sign).* On the upper aspect of the uterus, about a quarter of an inch internal to the point at which the right tube was originally attached, there was a ragged bleeding cavity about a quarter of an inch in diameter. This was at first thought to have been caused by some instrument used to procure abortion, but on carefully mopping the blood from its walls chorionic villi were plainly seen. An effort was made to pass a probe through the hole into the cavity of the uterus, but no communication could be discovered. A small wedge of adjacent uterine musculature was excised and the resulting wound closed with buried sutures of catgut. A search was made for a remnant of ovarian tissue on that side, but none was found. A small corpus luteum cyst was seen in the left ovary. The wound was closed without drainage and the patient made an uninterrupted recovery.

McIntyre,[3] Campbell,[4] and Douglass[5] report very similar cases, interstitial pregnancy occurring in each case in the tubal stump after removal of both tube and ovary. Lesse,[6] Di Palma,[7] and Hofmeier[8] report cases following removal of the tube alone. The *Journal of Obstetrics and Gynæcology*[9] quotes a case in which there is no statement as to whether or not the ovary had been removed along with the tube at the first operation. Nache[10] reports a very interesting case of interstitial pregnancy occurring three months after he had attempted sterilisation of the patient for pulmonary tuberculosis by removing the Fallopian tube on each side, together with a wedge of uterine tissue. Campbell states that in his case the uterine cavity communicated with the ovarian cavity by means of the orifice of the Fallopian tube. Douglass, on the other hand, tried unsuccessfully to pass a probe from the ruptured ovarian cavity into the uterus.

* Ruge Simone's sign consists in its entirety in noting that with an interstitial pregnancy (1) the fundus on the affected side is raised, (2) asymmetry of the adnexa is present, (3) the round ligament has a lateral insertion into the fœtal sac.

COMMENTARY.

There were several points in this case which made even the diagnosis of a ruptured ectopic gestation uncertain. The pain, although of sudden onset, was preceded for three hours by epigastric pain. The pain was definitely right-sided—that is, on the side on which tube and ovary had previously been removed. The history of a missed period was a doubtful one, and at no time during the attacks of recent pain had there been any vaginal loss. The absence of this last symptom is noted by McIntyre, Leyland Robinson,[11] Vineberg,[12] and others, but its absence is by no means constant. Moreover, the patient showed none of the signs of internal hæmorrhage, her pulse rate, for instance, being only 88.

Rupture occurred in the fifth week, although Curtis[13] and others consider that an interstitial pregnancy tends to rupture about four weeks later than one in the Fallopian tube itself. But Waegeli, in his masterly paper, La Grossesse Interstitielle, found that out of 38 collected cases,

4	ruptured	during	the	1st month.
11	,,	,,	,,	2nd ,,
9	,,	,,	,,	3rd ,,
7	,,	,,	,,	4th ,,
7	,,	after.		

The age at which rupture occurs seems to depend solely upon the site of implantation of the ovum. If this takes place at either end of the interstitial portion of the tube, rupture will be early; if in the central part, where it will be surrounded by thick muscle, rupture will be late. The assumption in this case is that implantation was at the extreme tubal end.

Waegeli argues at length the question as to whether an interstitial pregnancy develops within the lumen of the tube or in the uterine muscle deep to the mucous membrane. Were growth intracanalicular we should expect, in each case, to find that the ovarian cavity communicated by means of the uterine opening of the Fallopian tube. In those cases in which ovarian and uterine cavities have been found to communicate, Waegeli considers that there has been a rupture of the muscular septum between them, rather than a dilatation of the uterine opening of the tube. His microscopical findings support this contention, for in one case he traced the lumen of the interstitial part of the tube and found it complete and separate from the ovarian cavity throughout its length. He concludes that when implantation occurs in the interstitial part of the tube, where the

mucous membrane is thin and uncomplicated by folds, the ovum finds itself in direct contact with the uterine musculature, thus differing from uterine implantation where the thick decidua prevents contact with the muscle. It differs, too, from tubal implantation where, owing to the complexity of the folds of the mucous membrane and to a partial decidual reaction, the ovum does not at first come into contact with the muscle itself. On these grounds Waegeli considers that every case of interstitial pregnancy is to be regarded as truly intramural and extracanalicular.

We know nothing of the mechanism of arrest and implantation. In our case there was certainly no ovarian tissue on the right side; therefore the ovum must have come from the opposite side. It may have passed normally down the left Fallopian tube, become fertilised, and entered the uterine orifice of the right tubal stump; this is extremely improbable. It is far more likely that the ovum, originating from the left ovary, crossed the peritoneal cavity and found its way into the right tubal stump, which for some reason had regained its patency. That such regeneration can occur after salpingectomy is proved by the remarkable case reported by Nache.

Again, one can but speculate on the point at which fertilisation occurred. It may have been that the uterine orifice of the right tube had been constricted by previous inflammation so that it would permit the entrance of spermatazoa but not the exit of the fertilised ovum. On the other hand, fertilisation may have taken place either in the interstitial part of the right tube or in the abdominal cavity by spermatazoa which have found their way up the left Fallopian tube. Blacker[15] points out that this is the normal procedure in pregnancy in the rudimentary horn of a bicornuate uterus, in which there is no communication with the cavity of the uterus. It is conceivable that if fertilisation had taken place by this method within the abdominal cavity, the ovum would have grown to such an extent as to inhibit its progress down the narrow interstitial part of the tube. In our case there was nothing in the previous history pointing to such pelvic inflammation as might have been responsible for the partial closure of the uterine orifice of the tube. In the reported cases of interstitial pregnancy the previous histories often tell of febrile abortions and other similar inflammatory troubles. In McIntyre's and Di Palma's cases the tube had previously been removed on account of salpingitis. Hennig[16] has suggested that the mouth of the tube is sealed over by an excessive decidual growth, thus preventing the entrance of the ovum into the uterine cavity. Another possible explanation of interstitial pregnancy is that the ovum becomes embedded in one of the tubular diverticuli of the uterine mucosa. Waegeli, although he noted the presence of such diverticuli in one of his sections, was unable to trace any connexion between them and the ovarian cavity.

My thanks are due to Mr. G. C. F. Robinson, senior surgeon to the South Devon and East Cornwall Hospital, Plymouth, for permission to publish this case and for the opportunity of operating upon it.

REFERENCES.

1. Winkel, F.: Handb. d. Geburt. und Gynäk., Berlin, vol. ii., pt. 2, 756.
2. Munro-Kerr, J. M.: Operative Midwifery, London, p. 560.
3. McIntyre, D.: Jour. Obst. and Gyn. Brit. Emp., 1922, xxix., 314.
4. Campbell, J. L.: Jour. Amer. Med. Assoc., 1910, liv., 875.
5. Douglass, J.: Ibid., 1920, lxxiv., 582.
6. Lesse, F.: Centralb. f. Gynäk., 1905, xxix., 554.
7. Di Palma, S.: Surg., Gyn., and Obst., 1921, xxxiii., 285.
8. Hofmeier, M.: Berlin klin. Woch., 1905, xlii., 847.
9. Hinder, H. C.: Australasian Med. Gaz., August 20th, 1902, quoted by Jour. Obst. and Gyn., Brit. Emp., 1902, ii., 489.
10. Nacke, W.: Centralb. f. Gynäk., 1911, xxxv., 1345.
11. Robinson, A. Leyland: Jour. Obst. and Gyn., Brit. Emp., 1923, xxx., 95.
12. Vineberg, H. N.: Amer. Jour. Obts., 1915, lxxi., 810.
13. Curtis, A. H.: Surg., Gyn., and Obst., 1918, xxvi., 551.
14. Waegeli, M. C.: Rev. de Gyn. et de Chir. Abd., 1915, xxiii., 405.
15. Blacker, G. F.: Eden and Lockyer's System of Gyn. and Obst., London, vol. i., p. 471.
16. Hennig, C.: Centralb. fur. Gynäk., 1889.

NON-SPINOUS PSOAS ABSCESS.

FOUR CASES AT A CHILDREN'S HOSPITAL.

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THE type of psoas abscess here considered has no origin in the spine and is not tuberculous. This group of abscesses does not appear to be generally recognised and may therefore present difficulties in diagnosis. The cases reported were admitted to the Queen's Hospital for Children during 1929 and three of them were observed by myself. The cases showed a marked similarity and the first may be taken as typical.

CASE 1.—A boy, aged 4½, was sent to the hospital with the diagnosis of acute appendicitis. Five days previously he had been noticed to be feverish and had vomited once. Two days previously he had begun to limp and had complained of pain in the right groin and the right lower abdomen. When he was admitted the temperature was 101° F. The abdomen moved well; tenderness in the right iliac fossa was marked and some fullness could be detected just above the right Poupart's ligament. The right hip-joint was flexed to nearly 90° and extension was very limited and painful. In this position of flexion other movements of the hip-joint were almost normal. Nothing abnormal could be seen or felt in the spine or loins. Rectal examination showed marked tenderness on the right side. The X ray films of the spine and hips were negative. The urine was sterile.

On the operating-table the hip-joint remained flexed even after the patient was deeply anæsthetised, thereby showing that the flexion was not due to irritation of the psoas muscle. An incision was made above Poupart's ligament and, after the fascia iliaca had been incised extraperitoneally, about a pint of greenish pus escaped. On exploration of the abscess cavity its connexion with the psoas sheath was established (hence the persistent flexion due to the distension of the sheath). The wound was drained and uninterrupted recovery followed, with complete range of movement at the hip-joint.

CASE 2.—A girl, aged 6½, was admitted on July 24th, 1929, suffering from pain in the right hip, which had lasted for four days. She had been unable to walk for two days. On admission her temperature was 102° F. Tenderness was marked in the right iliac fossa and a mass could be felt there. The right hip-joint was flexed to a right angle and extension was painful. There was a nearly healed septic toe on the left foot. X ray films of the spine and hip were negative. A blood count showed 19,000 white cells. The urine was sterile and contained approximately 70 pus cells per c.mm. McBurney's incision was made; the appendix appeared healthy but the psoas was bulging and was incised and drained through the abdominal incision. Staphylococci were grown from the pus and the von Pirquet test was negative.

CASE 3.—A boy, aged 13, was admitted on April 7th, 1929, complaining of aching in the right hip, thigh, and knee for a week. He was unable to walk. On admission his temperature was 102° F. and his right hip was flexed to an angle of 45°. The spine appeared normal. At operation the iliopsoas sheath was exposed extraperitoneally, incised, and drained. Staphylococci were grown from the pus.

CASE 4.—A girl, aged 4½, was admitted on August 4th, 1929. She was limping and constipated and had had pain in the right thigh for six days. On admission her temperature was 101° F. and extension of the right hip was limited and painful. A swelling could be felt in the right iliac fossa and bimanual rectal examination showed that it extended into the pelvis. Leucocytes, 25,000. The urine was sterile, and contained approximately 70 cells per c.mm. The abscess was aspirated and *Staphylococcus aureus* was grown from the pus. No tubercle bacilli were

seen. X rays of the spine and hip were negative and the von Pirquet test was negative.

DIFFERENTIAL DIAGNOSIS.

In none of the cases was the correct diagnosis made before admission to hospital. The presence of a psoas abscess was not recognised in three cases. Case 1 was diagnosed as an acute appendicitis and Case 2 as an appendix abscess. The insidious onset and the absence of marked and progressive signs of peritonitis in spite of continued pyrexia should distinguish acute iliopsoas abscess from acute appendicitis and appendix abscess. The flexion of the hip-joint, which is maintained during anæsthesia, should help further to make this distinction. Case 3 was diagnosed as acute arthritis of the hip, a condition which is characterised by the immobility of the joint. In this case, however, on careful examination it was found that all the movements could be made painlessly if the hip was held in flexion. In Case 4, in which a psoas abscess was recognised, the diagnosis of Pott's disease was made. There was no loss of mobility of the spine when the patient was sitting, and this was an argument for excluding the spine as the seat of disease.

PATHOLOGY.

Staphylococci were grown from the pus of four cases. Only in one case was there an obvious focus of infection—a septic toe. The non-tuberculous nature of these cases is shown by the fact that the von Pirquet reaction was negative in the three cases in which it was performed. In three cases the urine was sterile but its cellular count was definitely raised. If we assume that this high cellular count suggests an infection in the neighbourhood of the kidney—there being nothing to indicate an infection of the urinary tracts—the course of the disease is quite compatible with a lower pole epinephric abscess (Israel[1]) discharging into the iliopsoas sheath. The possibility that the pus may pass downwards behind the fascia iliaca is supported by Wolkow and Delitzin,[2] who have demonstrated that the anterior and posterior sheaths of the renal fascia fail to unite inferiorly. Non-spinous psoas abscess may also originate from either tuberculous or pyogenic lymphadenitis of the retroperitoneal glands, as described by Baer, Bennett, and Nachlas.[3] Also, the rare cases of acute arthritis of the iliosacral joint may give rise to a psoas abscess.

My thanks are due to the surgeons of the Queen's Hospital for Children for permission to publish these cases.

REFERENCES.

1. Israel, J., and Israel, W.: Chirurgie der Niere u. d. Harnleiters, Leipzig, 1925.
2. Wolkow, A., und Delitzin, I.: Die Wanderniere. Ein Beitrag zur Pathologie des intra-abdominalen Gleichgewichts, Berlin, 1899.
3. Baer, W. S., Bennett, G. E., and Nachlas, I. W.: Jour. Bone and Joint Surg., 1923, v., 590.

A CASE OF SIMULTANEOUS DIPHTHERITIC AND SYPHILITIC INFECTION OF THE THROAT.

BY HESTER E. DE C. WOODCOCK, M.B. LEEDS,
SENIOR ASSISTANT MEDICAL OFFICER, LEEDS CITY HOSPITALS.

A MAN of 45 was admitted to the Leeds City Hospital on Nov. 8th, 1929, as a case of diphtheria. Before admission *B. diphtheriæ* had been isolated from the throat and 4000 units of antitoxin had been given. The history was that the patient had had a sore throat for two months. He had felt run down for some time, but had attributed this to a "septic finger," following an injury by a piece of wire in August.

On admission the man looked ill, with a greyish pallor. The temperature was 99° F. and the pulse-rate 102. There was some slight congestion of the fauces, most marked on the right. The tonsils were slightly enlarged, and on the right there was a thick mass of yellow slough filling the tonsillar fossa, with definite excavation of the lower end of the tonsil. There were one or two yellow patches on the posterior pharyngeal wall. The mouth was very offensive. The glands were enlarged and tender at the angles of the jaw, and also in the posterior triangles. The right index-finger had been on wet dressings for many weeks. The nail had been removed, the end of the finger was bulbous and sodden, and there was a little suppuration of the nail bed.

A Schick test could not be performed, owing to the administration of antitoxin before admission. Although the throat lesion was not typically diphtheritic, in view of the bacteriological findings, a further dose of 16,000 units of antitoxin was given on admission, and simple gargles prescribed before further investigations were made. The finger was fomented for a week, and then put on dry dressings. A direct smear from the throat showed only mixed cocci with no suggestion of Vincent's organisms, while *B. diphtheriæ* were again found in culture, and on inoculation into guinea-pigs proved to be virulent. The Wassermann reaction was positive.

On Nov. 13th the patient was put on hyd. c. cret. gr. ii., t.i.d., and six doses of 0·3 g. of novarsenobenzol were given intravenously at weekly intervals. On Nov. 16th he became very deaf, and on the 18th he began to ramble and became forgetful, but this condition only lasted a few days. On the 19th there were stabbing pains in the lumbar region shooting through the abdomen. On the 20th the throat, until now very resistant to treatment, became much cleaner, but the excavation of the right tonsil was still very marked. The finger was by now almost healed. The throat was not absolutely clean until Dec. 10th. For the first three weeks after admission there was an irregular temperature, between 99° and 103° F., with an occasional drop to subnormal, the pulse-rate ranging from 84 to 128.

On Nov. 21st the patient developed a dark pink rash, punctate on the trunk and legs, somewhat papular on the arms and shoulder-blades. The next day it became more vivid, more profuse, and more measly in character, with small areas of white skin between the macules. The voice became hoarse, the throat congested and dry. The next day the rash looked more like a fading scarlatinal eruption, and by Nov. 24th it appeared as a diffuse dark erythema on the trunk, and gradually faded. On the 28th the temperature fell to normal and remained there, with the exception of an occasional rise after the intravenous injections. On Dec. 27th the tonsils were removed, as the throat cultures persistently showed the presence of *B. diphtheriæ*. Ten days after the operation, when the fauces were completely healed, the cultures became negative, and the patient was discharged from hospital to the care of his own doctor.

The case is interesting because of the persistent presence of virulent diphtheria organisms in a throat which showed clinically a secondary syphilitic lesion, and because the condition failed to clear up on administration of diphtheria antitoxin. The true nature of the lesion was proved by the Wassermann reaction and by the response to antisyphilitic treatment.

The occurrence and peculiar nature of the rash raised several questions: (*a*) Was it caused by serum? Probably not, in view of its persistence and its changing type. (*b*) Was it an exanthem? Against this were the variability in type, the absence (apart from the congestion of the throat) of any other typical sign or symptom, and the fact that during the whole of his stay in hospital the patient was isolated. (*c*) Was it due to the novarsenobenzol? It occurred after the second dose, but on no other occasion. (*d*) Was it a syphilitic manifestation? This is probably the most likely explanation.

The "septic finger" began four months before admission, and healed shortly after antisyphilitic treatment was started. Could this have been the site of syphilitic infection, as there was no other evidence of primary sore?

I am indebted to Dr. J. S. Anderson, superintendent of the City Hospitals, for permission to publish this case.

REVIEWS AND NOTICES OF BOOKS

Malformations of the Jaws and Teeth.

By Dr. EMIL HERBST, Honorary Lecturer and Principal of the Orthodontic Division, Wilhelm's University, Westphalia; and Dr. MAX APFFELSTAEDT, Professor and Director of the Dental Institute of the University. London: Humphrey Milford, Oxford University Press. 1930. Pp. 320. 25*s*.

MALFORMATIONS of the teeth and jaws considered as a branch of antenatal pathology concern the anatomist, teratologist, and dental surgeon. They represent a fascinating chapter in the curious aberrations to which the human embryo is subject.

The first part dealing with malformations of the jaws is from the pen of Dr. Herbst. This section will interest particularly the student of teratology, for the malformations of the jaw are part of the larger subject of cranial defects. Dr. Herbst has collected examples of many rare conditions which are carefully described and fully illustrated. The chapter of most interest is that on cleft palate. It follows in the main the teaching of Karl Peter, whose explanation of the morphology of the elements involved in cleft palate differs from that usually followed in this country which is based largely on the work of Sir Arthur Keith. Peter believes that the cleft, where it is complete, instead of passing between the premaxilla and maxilla passes directly through the premaxilla itself. As is well known, in complete clefts the lateral incisor or a misshapen tooth which appears to correspond with it, lies most frequently on the distal side of the cleft and the separated premaxilla contains only the central incisor. It is true that the occurrence of supernumerary teeth in the region of the cleft is very common, and since they may not appear until many years after birth the exact identification of the morphology of the dental elements in the cleft region is difficult. Yet the appearance of the lateral (the pre-canine of Albrecht) on the distal side of the cleft is difficult to reconcile with the view that the cleft lies between the premaxilla and maxilla. Keith explains it by supposing that the lateral may be carried backwards by subsequent growth. He points out that exceptionally this tooth may be placed mesially to the cleft; it may lie at the apex of the cleft or more commonly it may be situated distally. These three positions are explicable by the later growth of the jaw. Peter, on the other hand, states that the cleft runs through the region of the lateral incisor, and in this way explains both its position on the distal side of the cleft and the frequent appearance of supernumerary incisors in cleft palate. The problem is primarily one for the embryologist. Perhaps the restatement of Peter's views in this book will stimulate some further investigation.

The second part of the book is by Dr. Apffelstaedt, and deals with malformations of the teeth. These, while of great interest to the dentist, are less intimately connected with the general problems of embryology and teratology than malformations of the jaws. Complete though this section is, we find a few omissions, notably the remarkable case recorded by J. H. Gibbs in the Transactions of the Thirteenth International Medical Congress under the title of Polyphyodontism in a Child, in which there were three rows of teeth superimposed on one another in the mandible. On the other hand, many of the malformations described are extremely rare, and the authors must have exercised a prodigious amount of industry to have compiled so full a catalogue of the monstrous and unusual. The anonymous translator has performed his task well and the book is free from that stilted phraseology common in translations.

Human Biology and Racial Welfare.

Edited by E. V. COWDRY. London: H. K. Lewis and Co., Ltd. 1930. Pp. 612. 28*s*.

AN omnibus volume of 25 essays by 27 authors which have this much in common, that they relate to the progress of natural knowledge on the one hand and to human welfare on the other. After an introductory chapter on life in space and time, the rest fall into four groups: the origin of man; man as a physiological unit; the effects of environment; the future. The essays are naturally of very unequal merit and interest. The chapter on the Reaction to Food is too much concerned with personal researches on vitamins. Similarly, the article on Adjustment to Infectious Disease misses a great opportunity, giving only rather a dull account of the antigen-antibody reaction. Sir Charles Sherrington and Dr. Fulton write on nervous integrations, Sir Humphry Rolleston on what medicine has done, Prof. W. B. Cannon on the integrative action of the circulating blood, Prof. Huntington (whose work is still less known than it should be) on the effect of climate—these and some of the others will be read with pleasure and profit. We only wish that there was a little more integration about the book as a whole.

Reflex Action: a Study in the History of Physiological Psychology.

By FRANKLIN FEARING, Ph.D., Northwestern University, Chicago. London: Baillière, Tindall and Cox. 1930. Pp. 350. 30*s*.

AT a time when "reflex action" occurs almost as readily to the psychologist as to the physiologist by way of at least verbal explanation of diverse and heterogeneous phenomena, a learned survey of the vicissitudes undergone by the conception since its earliest days is useful. The reader is taken lingeringly over centuries of thought and research, from the times of Descartes and Vesalius to those of the "Gestalt" school, and is amazed not only by the extent of the author's erudition but by his consummate skill in seizing what is essential and informative in a host of conflicting theories, thus enabling one to reach a position of orientation, a central place from which to look round. All this is admirably done, and human interest is added to the older material—necessarily somewhat dry—by reproduction of portraits of men well known in the history of the subject, and of title pages of old books.

We confess we find Prof. Fearing's comments at the close more valuable than much here set down to complete the historical picture. He distinguishes three variations of the concept as follows: (1) the "specific" concept regards reflex action as possessing certain physiological and psychological characteristics differentiating it from all other kinds of action; (2) the "genetic" concept, according to which there is no sharp break between reflex action at one end of

the scale and volitional response at the other; (3) the "mechanical" concept, which declares receptor-effector action to underlie and predetermine *all* behaviour. He puts his finger unerringly, it seems to us, on the cruxes of the situation; we must find out how volitional control is operative upon reflexes, must determine what we mean by automatism, must look past merely artificial terminology to what is actually happening when the organism adjusts itself. Prof. Fearing has not given us enough of his own decisions and conclusions; curiously, one of those he does offer—viz., "the sterility of the faith that mind and behaviour can be envisaged by number and measure has been exposed"—is precisely one which cannot be accepted without reserve.

General Practice (Some Further Experiences).

By ERNEST WARD, M.D.Cantab., F.R.C.S.Eng. London: John Bale Sons, and Danielsson, Ltd. 1930. Pp. 108. 3*s*. 6*d*.

Dr. Ward, whose volume "Medical Adventure" was favourably reviewed in these columns recently, presents in this little work some further experience of general practice with the same soundness and amusing shrewdness which characterised its predecessor. Fate, we learn from his words, has ordained for him a wide and varied experience of general practice. "I have," he writes, "had practices with clubs and without, practices on foot, push-bike, and car, medico-legal work, operations, and other side activities," and it is clear that the various episodes set down could only have come from the pen of one, who, in addition to possessing powers of observation and capacities for sympathy, had this wide range of experience. There is not a chapter in this book where the young practitioner will not find some guiding word—some apt piece of counsel for application in the conduct of practice.

Modern Infant Feeding.

By BERNARD MYERS, C.M.G., M.D., M.R.C.P. Modern Treatment Series. London: Jonathan Cape, Ltd. 1930. Pp. 160. 5*s*.

Dr. Bernard Myers has here supplied a summary of the physiology of the infant and the theory and practice of infant feeding, which, considering the small size of the volume, is remarkably complete. The method of artificial feeding, which is described in most detail, is a fairly simple dilution of cow's milk with added carbohydrate and low fat content; the uses of and indications for other preparations are also discussed. The last chapters contain accounts of the clinical features and the treatment of some alimentary disturbances, such as diarrhœa and marasmus. Like other volumes of the series to which it belongs, the book has the advantages of convenient size and low price.

Les maladies des vésicules séminales.

By E. CHAUVIN, Professor of Clinical Urology at the Medical School of Marseilles. Paris: N. Maloine. 1930. Pp. 216. Fr.40.

Prof. Chauvin has attempted to estimate the importance of the seminal vesicles as a source of trouble in urological conditions. As he points out in his preface, his countrymen are inclined to disregard the vesicles and concentrate their attention on the prostate, whilst American urologists consider the vesicles as of equal importance, at any rate in cases of chronic urethritis and cystitis. Luys alone, of all French urologists, has stressed the rôle of the vesicles in maintaining chronic infections and in acting as a primary focus in such troubles as gonorrhœal rheumatism. As a preliminary to his description of the pathology of the vesicles, the author devotes a chapter to their anatomy. Unfortunately, he illustrates his text by means of a plate which is somewhat misleading, since the vesicles are shown in an almost vertical position, whereas, in fact, they approach more nearly the horizontal and lie almost in contact with the upper margin of the prostate. No attempt is made to discuss their physiology, which is surely an omission in so comprehensive a work. The second part of the book deals entirely with pathology, and the third with surgery. Much extremely useful information has been here collected and presented in a readable form. It is curious that the author does not dwell on the utility of diathermy in cases of acute gonococcal infections; he leaves the impression that he is in favour of surgical intervention, and has little faith in less drastic methods. The work contains a very complete bibliography which should make it of use to all surgeons who have to deal with this region. The importance of vesicular infections is being more and more recognised, and the appearance of a complete treatise on the subject is to be welcomed.

Handbook of the Vaccine Treatment of Chronic Rheumatic Diseases.

By H. WARREN CROWE, D.M., B.Ch.Oxf., M.R.C.S., L.R.C.P., Director of the Charterhouse Rheumatism Clinic; late Consulting Physician (vaccine treatment) Yorkshire Home for Incurable and Chronic Diseases. London: Humphrey Milford, Oxford University Press. 1930. Pp. 52. 2*s*. 6*d*.

THE object of this small book is to set out in detail the author's method of treatment, by stock vaccine, of chronic rheumatic conditions. Dr. Crowe has used this form of treatment at his rheumatic clinic since 1928 with, he believes, considerable success; further, he holds it to be quite suitable for use in general practice. The vaccine is prepared from 155 different strains of streptococci, and one staphylococcus which he has named *S. deformans*. Very small doses are given, since in his opinion reactions are harmful and should at all costs be avoided. Although the author puts forward this treatment as one simple enough as to be eminently suitable for use by the busiest practitioner, this advice must be taken with caution, for pitfalls exist and error would be so disastrous to the patient: it is possible that the technique is more complicated than Dr. Crowe suggests. At one point in the book the author says: "Now, since all the rheumatic diseases respond in exactly the same way to vaccine treatment, whether they are thought to be microbic or not, surely the only possible inference is that they are all microbic." This is not sound reasoning, since it is impossible to tell how far the reaction is due to the injection of a foreign protein. Anyway, the theory and practice can be tested, for Dr. Crowe invites practitioners to visit his clinic and see the work in progress and the results obtained; he will, further, supply the vaccine free for trial.

THE LANCET.

LONDON: SATURDAY, AUGUST 9, 1930.

PLACENTAL HORMONES.

As long ago as 1905 HALBAN suggested that the placenta could act to some extent as an organ of internal secretion, and that it was capable of producing a supply of the hormone now called œstrin. The properties of this interesting substance have been mentioned in these columns on many occasions and it will be recalled that the physiological action which has so far received most study is the inducement of the cyclical changes of œstrus or "heat" in rodents and other laboratory animals. This result follows administration of the hormone either to the immature female before natural puberty, or to the mature animal in which the normal sexual cycle has been completely arrested following double oöphorectomy. Œstrin itself has no effect on the ovaries of the animals, and its action is principally upon the uterus and vagina, in which it brings about characteristic changes. A substance with very similar properties, and assumed by most workers to be identical with œstrin, is obtained from the ovaries themselves, principally from the liquor folliculi, and is also present in surprisingly large quantities in the urine during pregnancy. Consequently, the latter is a very convenient source for the preparation of the hormone and from this source it has now been obtained in a crystalline state by several workers.[1] This substance is of such remarkable purity that only about one ten-millionth of a gramme of the pure substance is sufficient to bring about œstral changes when injected into castrated mice. Its preparation from the placenta and from urine has been described by a number of workers, principally E. A. DOISY, A. BUTENANDT, G. F. MARRIAN, E. C. DODDS, and F. DICKENS. These investigations of its chemical properties show the substance to be weakly acidic, probably a lactone of a fairly complex hydroxy-acid having several hydroxyl groups. It is soluble in fat-solvents though it may also be obtained in aqueous solution, and it is rather surprisingly stable to strong acids and alkalis and to heat: boiling the solution has no effect and the purified substance may be redistilled at about 150° C. in a high vacuum.

It is uncertain whether the placenta actually secretes this hormone in the way suggested by HALBAN, or whether, according to another theory, the presence of œstrin is due to a protective action of the placenta in preventing the circulating maternal hormones from reaching the fœtus. It is clear, however, that this is not the only hormone having a special relationship to the placenta. In 1928 B. ZONDEK showed that implants of small pieces of human placenta into mice caused not only precocious sexual maturity, but also stimulated the immature ovaries so that ovulation sometimes occurred and corpora lutea were found in large numbers in the ovaries. A very similar result follows implants of pieces of anterior pituitary gland, as was shown in 1926 by P. E. SMITH and E. T. ENGLE and independently, in the same year, by B. ZONDEK and S. ASCHHEIM. Since injection of the untreated urine of pregnant women brings about closely similar results it follows that besides œstrin, this other luteinising hormone is excreted during pregnancy. In fact the luteinising property of the urine is the basis of ZONDEK and ASCHHEIM'S biological test for the diagnosis of pregnancy. There is thus a close resemblance between the properties of this other substance contained in the placenta, and those obtained respectively from the urine and the anterior pituitary, though it seems too early as yet to assume with ZONDEK that definitely the same substance is concerned. This second principle, which may be briefly referred to as the luteinising hormone, differs markedly from œstrin in its chemical as well as its biological effects. It is freely soluble in water, though not at all in fat-solvents, and is a very labile substance at once destroyed by boiling and damaged even by heating to 60–70° C. Probably other active substances are present in placenta and urine, though these are as yet less well defined. Thus claims for separate follicle-ripening principles (ZONDEK) and a substance bringing about mucification of the vagina (B. WIESNER) have been put forward. It is not yet generally agreed to what extent the difference in these principles is qualitative rather than quantitative. Perhaps the most convenient classification for the present is to distinguish (1) those hormones which act only via the ovary, such as the anterior lobe luteinising hormone; and (2) those primary sex hormones which are elaborated by the gonads themselves and are represented by the testicular hormone and œstrin. Whereas the second group are sex specific the first act equally well on the male or female sex organs and may be called the gonad-stimulating hormones, since they are without effect on the castrated animal.

From this point of view the recent work of COLLIP[2] [3] may be examined. In his first preliminary communication on the subject, which we noticed in THE LANCET of March 1st, 1930, no details were given of the method of preparation of the substance obtained from human placenta and used for clinical tests. He claimed only to have isolated from the placenta "certain micro-crystalline fractions" which showed great activity in promoting precocious sexual maturity. The criterion of activity was the occurrence of œstrus in immature female rats, accompanied in some cases by the presence of corpora lutea in the ovaries. Since the latter result was not constantly found and has now been abandoned by COLLIP as a criterion of activity of his extract, it is important to inquire what steps were taken to differentiate the material from œstrin, the presence of which in the placenta is well known. From the chemical point of view

[1] See THE LANCET, 1930, i., 94.

[2] Collip, J. B.: Canad. Med. Assoc. Jour., 1930, xxii., 215, 761.
[3] Collip, J. B., and Campbell, A. D.: Ibid., 1930, xxii., 219.

the evidence is not very definite. The method of preparation used by COLLIP is briefly as follows :—

The minced placenta is extracted with alcohol, the active principle being soluble in all strengths of this solvent. After removal of the alcohol by distillation and of the lipoids by extraction with ether, the solution is suitable for clinical use. Crystals can be obtained by addition of ammonia to the concentrated solution. The purified product is relatively insoluble in water and about 1 mg. is obtained from a kilo of placenta. The potency is unaffected by boiling for five minutes in dilute acetic acid, though the saline solution may deteriorate on keeping. No further chemical details are given of the properties of the hormone since the amount available as yet for experimental work has been insufficient. The unit of the purified substance is provisionally considered to be of the order of 0·0015 mg.

In this process the preliminary treatment with alcohol would facilitate the extraction of the œstrin from the placenta. After removal of the fats with ether, probably only a trace of œstrin would remain in the aqueous portion. The question arises as to whether this amount is responsible for any of the physiological actions observed by COLLIP—i.e., the production of precocious maturity in the experimental animals. COLLIP's concluding words on this point are :—

"It has been suggested . . . . that œstrin or 'theelin,' as Doisy has now named the ovarian hormone, has not been entirely removed from our extract, and that the œstrus effects which have been obtained by its use may be attributable to traces of this hormone. Due to the consistent negative results which extracts of human placenta have given when tested on oöphorectomised animals, it was felt that this interfering factor had been adequately controlled. Larger doses will have to be given in the œstrin assay, over longer periods of time, to make this point clearer."

The wisdom of repeating and extending the experiments to cover these important points, and to indicate in a more definite way the true nature of the active substance or substances is obvious. The new name "emmenin" proposed for the active substance, in COLLIP's most recent paper, seems appropriate, but its general adoption is likely to be delayed until final proof has been obtained of its identity. This important work has aroused so much interest in clinical as well as biochemical circles that the results of its further development will be eagerly looked for.

SEASONAL VARIATION OF INFECTIOUS DISEASES.

THE parasitic nature of epidemic disease having been established beyond all reasonable doubt, there has been a recrudescence of interest in the equally well established seasonal variation in endemic and epidemic infection, which occupied so much of the attention of the older school of epidemiologists. Dr. T. J. MADSEN, in an address[1] delivered at the London School of Hygiene, surveys the seasonal factor in Danish epidemics during the last 40 years. In Denmark notification of all infectious diseases has long been obligatory ; the land has long been sheltered from natural catastrophes and war ; there has been no great epidemic, and climatic differences in this small country are not marked. Seasonal variations are therefore of particular interest. Dr. MADSEN showed how the Danish morbidity statistics confirm in all details those noted by the older observers and conform closely with the seasonal periodicities of other European countries and North America. Scarlatina, diphtheria, angina tonsillaris, and acute rheumatism, for instance, increase during the autumn to a maximum in November, drop a little in December, rise to a second peak in January, and then fall to a minimum in July. Broncho-pneumonia, bronchitis, and influenza display a decided maximum in January and February, falling to a minimum in August. The incidence of croupous pneumonia follows the same curves, but does not reach its maximum until March–April. Another winter-spring group is formed by cerebro-spinal meningitis and encephalitis ; the former has its maximum in February and the latter in April–May. Among the summer-autumn infections are epidemic diarrhœa, typhoid fever, and poliomyelitis. The last of these runs a curiously opposite seasonal course to the other nervous epidemics, so that Dr. MADSEN wonders whether the intestinal canal may not play a part in its ætiology. Measles and whooping-cough show no regular seasonal fluctuations, but it is a peculiar feature of any measles epidemic that there is always a depression in the month of September. In the southern hemisphere the curves are reversed to correspond with reversed seasons.

Dr. MADSEN considers and rejects the theory that the variations may be on the bacterial side, and allies himself with SYDENHAM in looking for some periodic change in man. N. FINSEN and L. ISACHSEN have found a periodic fluctuation in the quantity of hæmoglobin and the number of blood corpuscles, with a minimum in January and a maximum in July. J. LINDHARD has found a similar oscillation in the frequency and depth of respiration, the quotient of ventilation, and the alveolar carbonic acid tension ; this he ascribes not to temperature but to light. Dr. MADSEN therefore puts beside his other curves the sunshine returns for the year, and plots in one figure the general mortality-rate, the incidence of bronchitis, and the respiratory frequency ; the curves follow one another with remarkable faithfulness. Annual fluctuations are also known to occur in bodily weight—a minimum in February and a maximum in September—and in the vitamin content of food. Dr. MADSEN treads cautiously among these fascinating possibilities, and points out the enormous field that yet remains unharvested. He ventures to suggest, however, as a prophylactic measure, an effort to secure more efficient light in the dark period, and urges the medical profession to encourage people to get out into the open air and sunlight as much as possible in winter.

The French Academy of Medicine lately listened to a discourse on a similar subject[2] by Dr. M. A. TRILLAT, who has been impressed by the importance of barometric pressure on the origin and duration of epidemics. In support of this thesis he quotes the mortality of the European influenza epidemic of 1889 to 1890, in which, he says, the

[1] Public Health, July, 1930, p. 309.

[2] Bull. de l'Acad. de Méd., 1930, ciii., 698.

mortality rose and fell with the humidity. He states that a similar correspondence has been noted in other epidemics, though not in the influenza epidemic of 1918. Here he supports Sir LEONARD ROGERS, whose numerous brilliant investigations have shown how closely the incidence of many infectious diseases in correlated with the "absolute humidity" of the atmosphere. Dr. TRILLAT himself attributes the action of humidity on disease incidence to its effect on the transmission of "droplet infection." Thus far most modern epidemiologists would be inclined to agree with him, but when he speculates that sudden barometric depressions cause an evolution of gases from soil and organic refuse, and that these gases form a suitable nutritive medium for organisms growing or multiplying in the air, he has probably lost the sympathy of the modern bacteriologist who no longer believes that specific pathogens can multiply to any extent in the atmosphere.

These two papers form an interesting contrast; the one attributes the action of season and climate to its effects on the host, producing alterations in resistance to infection. The other attributes the effects of season to alterations in the "transmission factor"; for example, a high humidity, as one sees in a common mist or fog, permits the maintenance and suspension of microbe-containing droplets for a longer period than in a dry atmosphere. Undoubtedly both factors are important determinants of seasonal morbidity, but which is the more important is unknown. Their weight probably varies greatly in different types of disease and environment. Finally it is interesting to note how all epidemiologists have given up "bacterial variation" as an important cause of the seasonal changes in morbidity, just put forward by PASTEUR. We wonder if they are always justified in doing so.

INTRABRONCHIAL DRAINAGE.

THE lung has been described as the most perfectly drained organ in the body. Free outlets, however, mean free inlets, and the bronchial system which gives such easy passage for the expectoration of secretions and debris facilitates the rapid spread of infection from the primary airways to the lung tubes, from one side of the chest to the other, and from terminal bronchi to air cells. In the chest, as elsewhere, we must learn to think of diseases as affecting not organs but systems. The pulmonary tract is one and indivisible. We might almost say that though there are five lobes there is only one lung. The ease with which fluids pass from the upper air passages to the main bronchi and their subdivisions is demonstrated by the injection of lipiodol. Under the fluoroscopic screen the oil can be seen to reach the terminal bronchioles within two or three minutes of its injection. A very slight tilting of the patient suffices to determine the flow to the right or left lung. Oil injected into a bronchial fistula of one lung can be made to flow into the opposite lung by a simple change of posture. It is not surprising that chronic pulmonary affections are usually bilateral, and we may well wonder how it can be that infection associated with bronchiectasis is, at times, limited to a single lobe, while except in the earliest stages of the disease unilateral tuberculosis is very infrequent. The manner in which the disease spreads to the contra-lateral organ makes it almost certain that this spread is due to inhalation from the affected side.

In a recent paper on intrabronchial drainage HAROLD BRUNN and WILLIAM B. FAULKENER[1] remark that proper evaluation has not been given to the mechanical factors which are present in nearly every case of pulmonary suppuration. They point out that drainage of a suppurating area in a lung may be external or internal. In the former, septic matter is removed by expectoration. In the latter, pus welling up from the diseased focus spills over into adjacent bronchi, or crosses the tracheal carina, to track into the opposite lung. Failure to appreciate the mobility of septic matter within the lung tubes may lead to error in diagnosis of the site of disease. Thus an upper lobe abscess may discharge its contents into the lower bronchi, and in such a case, after the patient has maintained the erect position for some hours, the physical signs may suggest a lower, rather than an upper, lobe lesion. On the other hand, if secretion is not excessive external drainage may suffice to maintain the dilated tubes of an upper lobe bronchiectasis in a fairly dry condition.[2] Mechanical factors, again, may determine the flow of pus from the left lower to the right upper lobe if the patient remains recumbent on his right side. The violent spasms of coughing to which the victims of pulmonary suppuration are liable is due to bronchial blockage. BRUNN and FAULKENER point out that the injection of lipiodol by the oral route causes no cough unless a bronchus becomes obstructed through the accumulation of oil, when violent coughing is at once aroused. Sudden occlusion of a bronchus will cause severe cough even though all possibility of bronchial irritation has been abolished by cocaine. This observation has an important bearing on the posture of a patient during certain operations on the chest. If, for example, during a pneumotomy for abscess the patient lies upon his sound side, pus from the diseased lung may spill into the opposite main bronchus, and the patient will be in danger of choking, unless the violent, and otherwise very undesirable, spasm of coughing set up leads to expectoration. Such a misadventure is obviated by bronchoscopy before operation, and the bronchoscopic cleansing of after operation is an additional safeguard.

Internal drainage is not limited to lipiodol injections or pulmonary suppurations. It is significant that in a "migrating" pneumonia the physical signs of consolidation over one upper lobe are often followed by the development of similar signs at the opposite lung base. Such an event is, perhaps, rightly interpreted as due to a spill over of infection and a flow determined by mechanical considerations.

[1] Harold Brunn, M.D., and William B. Faulkener, jun., M.D.: Intrabronchial Drainage, Amer. Jour. Surg., Gyn., and Obst., July, 1930, p. 115.

[2] W. Burton Wood: The Oral Injection of Lipiodol as an Aid to the Differential Diagnosis of Upper Lobe Bronchiectasis and Pulmonary Tuberculosis, THE LANCET, 1930, i., 1339.

ANNOTATIONS

QUARANTINE FOR AIRSHIPS.

FLIGHT across the world is rapidly becoming so common as to bring a new anxiety to public health officials. The possibility of the introduction of disease —especially yellow fever—by passengers from airships was considered seriously by the permanent committee of the International Office of Public Hygiene in May of this year. There are obvious difficulties to be overcome before satisfactory aerial regulation can be established; for example, little is yet known about the behaviour of mosquitoes towards aeroplanes and airships—whether they accompany them readily or not. Experience has shown that transportation of adult mosquitoes aboard sea-going ships is rare, but whether this distaste for foreign travel is extended to flying machines has yet to be investigated. Regulations would presumably be applied at aerodromes where incoming 'planes made their landing, but some special system of supervision would have to be devised for seaplanes.

It is not long since we referred [1] to the position of Australia, once happily isolated by a sea voyage, now at the mercy of every air pioneer. Plague and cholera which are prevalent in Bombay and Rangoon are not conveyed to Australia by sea, since the incubation period is shorter than the voyage, but the flight from Rangoon has been accomplished in 62 hours. Small-pox could actually be transported from England by flight during the incubation period. The disadvantages of quarantine in such cases are obvious; the time saved by the traveller, at considerable expense, would be wasted in idleness at the quarantine station. In India the fear of the introduction of yellow fever following the completion of the Panama Canal has now been replaced by the risk of an entry along the Imperial Airways route to Karachi. The report of the Yellow Fever Commission suggests a quarantine period of three days for persons sick with yellow fever, there being no known example of mosquitoes receiving infection from human feeding made after the third day of the sickness. The quarantine periods for airships coming from infected areas have not yet been decided.

MEDICINE IN INDUSTRY.

THE crisis in industrial production during the war and the revolution in commercial procedure which has taken place since 1918, with the resulting changes in our social system, have tended to bring the profession of medicine into far closer touch with industry and commerce. The importance of the human factor in industry is increasingly realised, and industrial medicine has begun to take its place as an integral factor in the communal life.

The essentials of a welfare scheme are lucidly sketched in a brochure [2] recently issued by the Industrial Welfare Society. It is shown that welfare work is neither a luxury for rich corporations nor a system of organised care likely to diminish the worker's sense of individual responsibility. Every industry has its own needs, and some of sufficient size find it desirable to hand over much of the welfare work to qualified medical men or women who, if they find such work congenial, can render to industry services of a high order which are, however, of so varied a nature that dogmatic pronouncements on their functions are likely to be of little or no value. Perusal of the Society's pamphlet may well raise a number of important questions in the medical reader's mind. It is noteworthy, for instance, that our greatest industry, agriculture, still remains outside any existing scheme such as operates in the urban areas. It has to be realised, again, that the unemployed members of the population tend to deteriorate in an alarming fashion during long periods of idleness, and that this deterioration should be largely a matter for medical advice and scientific study. A third and related problem is the increase noted annually in the amount of sickness benefit drawn by insured workers. Decrease in the infant mortality-rate has not so far shown any commensurate increase in the physical standard of the young entrants into industry or, to judge by the debate reported on p. 318, of recruits for the armed forces.

It is not only difficult but undesirable to lay down definite lines for medical work in industry, but it is obvious that, in a somewhat neurotic age, pension schemes, saving funds, holiday funds, and the stimulation of healthy hobbies and pastimes are of definite therapeutic value. Production has in the past ten years advanced at a rate out of all proportion to our consumption, and at the same time there has been an increasing tendency to reduce working hours. The result of these two factors is that leisure and the spending of money need guidance into channels leading to mental and physical health, lest they tend to defeat the very ends which we have expected. Education becomes more important, and the results of it, be they good, bad, or indifferent, must in the end be reflected in the national health. Thus we find it impossible to divorce matters merely industrial and medical from matters national and non-medical, for we are all members of one body.

[1] THE LANCET, 1928, ii., 613.

[2] The Introduction of a Works Welfare Scheme. I.W.S., 51, Palace-street, London, S.W.

THE FEAR OF DRUG ADDICTION.

IT is probably true to say that on the whole more suffering is caused to mankind by the terror of drug addiction than by the addiction itself. Many practitioners could cap the story which Dr. R. D. Gillespie makes the text of a recent article.[1] A patient for whom he had prescribed a hypnotic rang up next day to report that his wife had shrieked, wept bitterly, and pleaded with him not to take the medicine ordered lest he become a drug addict. Dr. Gillespie ascribes the confusion of the public mind to two origins: to the universal association of the words "dangerous" and "drugs," because they stand in th'; relationship in the title of an Act of Parliament, and to the divided teaching of the medical profession. The layman tends to speak of addiction whenever any drug which cannot be described either as a tonic or an aperient is being taken continuously. This habit of mind will often yield to explanation, but it is harder to convince him that it is safe to take a remedy which has been branded as pernicious by some eminent doctor. Nor are the chemists entirely without blame; Dr. Gillespie cites the case of a pharmacist who took upon himself when dispensing a prescription to read the patient a homily upon his self-destroying folly in taking the medicine ordered. Another offender is the medical witness at inquests. Too often he

[1] Brit. Jour. of Ineb., July, 1930, p. 6.

fails to draw attention to the wide margin between hypnotic and lethal doses of a drug. Not very long ago the veronal group was condemned as a whole because a man had succeeded in committing suicide by swallowing the uncomfortably enormous dose of 300 grains of adalin.

Dr. Gillespie quotes official figures to show that the suicide-rate from hypnotic drugs is by no means alarming, but he has been unable to find statistical evidence to show whether true addiction is associated with these drugs at all, or whether addiction leads to suicide. Clinically, addiction of any kind is uncommon in this country, and the records of cases are hard to come by. Another example of the confusion surrounding this subject is the fact that an example of "addiction and suicide" is quite often made out of a case in which, for instance, the patient, having taken 10 grains of veronal regularly for a year without increasing the dose, swallowed some lysol and died. Morphia and cocaine, the real drugs of addiction, provide a feeling of well-being and a refuge from anxiety; these benefits are not conferred by the veronal group, and in fact some patients complain of discomfort in the head after a dose. Dr. Gillespie remarks that he has yet to find the patient who craves an increase of dose for the dose's sake. The reduction of anxious preoccupation sometimes obtained from these drugs is only temporary and cannot be maintained by repeated doses. He finds a remedy for the unsatisfactory state of affairs in studying the patient. To order a hypnotic and at the same time to alarm the patient by warnings and official regulations is to nullify its effects, but the doctor who knows his patient knows to what extent he can be trusted to carry out a treatment. "In such a way," Dr. Gillespie concludes, "and without the fuss of drastic regulations which could only doubtfully save the few, and which would undoubtedly handicap the many, hypnotics may be used safely and successfully."

BENIGN MENINGITIS.

THE label meningitis carries so bad a prognosis that where patients with many or all of the classical symptoms have suffered from a benign type of malady with complete recovery the diagnosis is often considered doubtful. Nevertheless, there are cases of this kind in which examination of the cerebro-spinal fluid has left no doubt of some meningeal reaction. This was the lesion described, many years ago, by Quincke as "serous meningitis," and recently a good account[1] of some cases under the title of "acute aseptic meningitis" has been given by A. Gunther, of Gothenburg. These cases, 13 in number, were mostly in children, and nine of them came under observation in early autumn months. The symptoms were those of acute meningitis, and included a brief prodromal period followed by an abrupt onset, with headache, fever, vomiting, and drowsiness. Five of the patients showed apathy, but none lost consciousness. Stiffness of the neck muscles was noted in four cases. Lumbar puncture in each case showed cerebro-spinal fluid under pressure, mostly clear, with excess of protein. Cells, numbering up to over 600 per c.mm. in one instance, were present in excess, and mostly consisted of mononuclears. The sugar content of the fluid appeared to be within normal limits in the cases where it was estimated. The chloride content does not seem to have been calculated, and bacteriological examinations were all negative. All 13 patients made a good recovery, and on re-examination after periods varying from eight months to over seven years none of them showed any sign of permanent damage to the central nervous system in any way. Gunther discusses the differential diagnosis and possible ætiology of these cases under various headings. The acute infective types of meningitis, such as tuberculous or cerebro-spinal, can be excluded on the evidence obtained. Syphilitic meningitis is likewise excluded on general grounds as well as by negative Wassermann reactions in the fluid in his cases. Epidemic (lethargic) encephalitis is more difficult to exclude, but various points are against it, including the absence of any sequelæ. The diagnosis narrows down to the question of whether this acute aseptic meningitis is a distinct type of meningitis or whether it represents a meningitic or abortive form of infection by the poliomyelitis virus. Gunther is inclined to favour the second alternative. Approaching the subject from another angle, H. Sievers[2] discusses the differential diagnosis of tuberculous meningitis in children, particularly as regards cases of so-called "meningism" associated with otitis media or some acute infection in some other part of the body. He describes several cases which clinically and from the examination of cerebro-spinal fluid are identical with Gunther's, and he concludes that an exact diagnosis between meningism and tuberculous meningitis may be impossible except as indicated by the progress of the patient. Tuberculin tests do not help greatly in these acute cases; the fact that bacilli are not found in the cerebro-spinal fluid does not exclude tuberculous meningitis, and more elaborate tests last longer than the illness. Sievers favours the view that otitis media leads to some sort of irritation of the meninges with a lymphocytic reaction. Neither of the views here expressed will satisfactorily explain all examples of "meningism," however, and further work is necessary. It would be a good thing if the chloride content of the cerebro-spinal fluid was always estimated in such cases.

[1] Jahrb. f. Kinderh., 1930, cxxviii., 127.

[2] Ibid., p. 228.

FURUNCULOSIS OF THE SALMONIDÆ.

FURUNCULOSIS has received renewed attention during the last few years on account of its rapid spread in salmon rivers in Scotland where the financial loss has been considerable, and in England and Wales where the damage, especially in trout streams, has been serious. An interim report[3] of the Furunculosis Committee of the Ministry of Agriculture summarises what is known of the various aspects of the disease and contains the results of recent investigations. The chief features of the pathology are the furuncles which are usually multiple, and the almost invariable septicæmia. The latter may cause death without discoverable local lesions or may occur in apparently healthy fish which can act as carriers and spread the infection. Histologically the furuncles are centres of necrosis and vascular congestion in the muscles or subcutaneous tissues which become softened but show no cellular reaction. There is no doubt that fish-farms have often been infected and that the disease has been spread by stock fish introduced from such sources in this country or on the continent. The possibility of a river becoming infected by salmon entering it from the sea is discussed in the report and dismissed as extremely unlikely on the grounds that no salmon has been conclusively proved to be infected unless it has been at least a short time in fresh water, that of

[3] H.M. Stationery Office. 1930. Pp. 65. 3s. 6d.

the many salmon caught and examined on their way down none has been infected, and that the irregular distribution of the disease in rivers whose mouths are adjacent is much against this view. There is, in addition, ample evidence of possible introduction from fresh water sources. The infective agent, *Bacillus salmonicida*, is easily recognised by its cultural characters, especially by the soluble brown pigment which colours the culture medium and by its pathogenicity for gold-fish, gobies, and frogs. When the virulence of a culture is low its identity can still be confirmed by complement fixation. Miss Williamson, who has been studying the disease under the Committee for the last two years, has attacked various aspects of the bacteriological problem and has published some results in appendices to the report. Among other important observations she finds that salmon eggs are not infected internally and can be disinfected and used for breeding even when they come from an infected source. The Committee recommends that importation of live fish should be prohibited, fish-farms supervised, and research on the outstanding problems continued and extended.

THE SENSORY PATHWAY.

Prof. J. S. B. Stopford has already published a series of studies on the arrangement and functions of the sensory system, and has impressed neurologists with the exactness and clinical applicability of his work. He has now dealt in more comprehensive fashion with the sensory pathway from periphery to cortex, being mainly, if not solely, concerned with one aspect—viz., that of objective change.[1] The equally significant questions of sensory overaction, of hyperæsthesia, of escape and release are not at present dealt with, since the researches along these lines are not yet complete. However, the fundamental facts are here set forth, and the functions of the various sections of the system are "welded into a harmonious whole."

Speaking generally, Prof. Stopford is convinced of the dual nature of the system, in the sense that both cutaneous and deep sensibility are divisible into sub-systems concerned respectively with protection and with discrimination. Probably no one conversant with the facts will dispute the general contention, even if details of interpretation cannot be universally accepted just as they are here stated. An ingenious effort is made to explain the phenomena of recovery after nerve suture in accordance with this duality. Although the anatomist and histopathologist is unable to distinguish any morphological differences in respect of regenerating fibres—and this fact may be thought by some to militate against dualistic interpretation—Prof. Stopford relies on the clinically demonstrable situation to argue that the protective system recovers function first and the discriminating system later. He assumes that in the circumstances "the paths by which cortical activity are aroused are out of action," and asserts, further, that "in the absence of activity of the sensory cortex, the corticothalamic fibres will not function." Both of these statements are open to criticism, though they are essential for his theory; a prick is felt, during processes of recovery, because "a prick can only appeal to the thalamus," and, as noted, the sensory activity of the cortex is declared to be in abeyance. Thus the further assumption is, that pain is appreciated as such only by the thalamus, and that the latter is conscious of its own activity. Objections which have been raised to this way of looking at the facts of clinical observation are rather summarily dismissed, and insufficient attention is given to the equally important fact that the hypothesis of thalamic release is not as yet erected on any sufficiently precise pathological basis however plausible it be. Indeed, we find constant reference to the action of "cortico-thalamic" fibres without any exact description of their anatomical locus, and without any hint that thalamocortical fibres may be intermingled therewith. The thoroughly unsatisfactory nature of the war-wound cases on which Head relied for his estimation of the site and extent of the sensory cortical system, and for revelation of its functions, is not made clear; in this respect precise clinical and pathological investigation is still required. Prof. Stopford has given considerable attention to sensory disorders resulting from medullary lesions, but does not appear to have seen cases in which the loss of sensibility consecutive to involvement of the descending root of the fifth has been of segmental type, not corresponding to peripheral branches of the fifth; and this appears to weaken his conclusion that the most cephalic part of the spinal nucleus of the trigeminal receives fibres from the inferior maxillary division, and so on in reversed order for the other two. In certain cases of syringobulbia the loss over the face runs across peripheral arrangements; Prof. Stopford does not take this circumstance into account. There is thus much in his thesis to provoke discussion, but no one will peruse its pages without being convinced of the strong case made out for physiological duality, and without recognising the numerous points in which a further sound addition to knowledge has been made by his researches.

[1] Sensation and the Sensory Pathway. By John S. B. Stopford, M.D., F.R.S., Professor of Anatomy, University of Manchester. London: Longmans, Green and Co. 1930. Pp. 148. 7*s*. 6*d*.

RADIUM TREATMENT OF RECTAL CANCER.

In recording his experience of the radium treatment of rectal carcinoma during five years ending last December, Sir Charles Gordon-Watson reports[1] on a group of 93 cases. He describes, as follows, the various ways in which cancer of the rectum can be rendered accessible to radium barrage: (1) Posterior barrage by open operation from the perineum with needles; (2) intra-abdominal radiation with needles or seeds; (3) radiation through the vagina; (4) intra-rectal radiation with needles or seeds; (5) radiation through the perineal skin; and (6) surface radiation on Columbia paste. So far, he says, he has not been able to employ distant "bomb" therapy. Recently a number of operable growths have been irradiated without preliminary colostomy. For intra-abdominal radiation Sir Charles considers a filtration of 0·8 mm. of platinum essential; as regards the danger of implanting needles into supraperitoneal growths, he points out that while emanation seeds are undoubtedly safer it has as yet been difficult to get a sufficiently heavy radiation. Favourable types for radium treatment have been squamous growths at the anal margin and small ones low down in the anterior rectal wall in women; the latter can be effectively treated by vaginal barrage. Sometimes an inoperable case has been rendered operable by preliminary use of radium, and the difficulties of radical operation have not been noticeably increased, though healing after operation has been slower than usual. Sir Charles points out, however, that radical operation should not be attempted after abdominal radiation owing to the likelihood of adhesions from the resulting plastic inflammation. Summing up the

[1] Brit. Jour. Surg., 1930, xvii., 643.

present position he says that for an operable cancer of the rectum radical excision should still be advised unless the patient is unfit or refuses the treatment, in which case radium should be tried as holding out "great though uncertain prospects of cure." For inoperable growths he believes that a small but increasing proportion of cases may be cured by radium treatment, while many advanced ones may be much relieved.

As an introduction to this paper, Dr. Cuthbert Dukes, director of the research laboratory at St. Mark's Hospital, records his observations on the spread of cancer of the rectum. He classifies the tumours in three groups, A, B, and C, according to the depth which cancer cells are shown to have reached. Three-quarters of the cases examined fell into Group C, in which the tissues surrounding the rectum are invaded by direct spread through the rectal wall, and in the first 100 cases examined there were 40 Group C cases in which metastases were found in the regional lymphatic glands. On the other hand, no evidence of lymphatic involvement was obtained in the 25 cases of Groups A and B which were examined. The conclusion reached by Dukes is that metastasis in the lymphatic glands is usually late and that it occurs only when the cancer has spread by continuity into the perirectal tissues. His observations emphasise the importance of upward lymphatic spread but minimise the likelihood of lateral and downward spread. As a method of estimating prognosis the routine method of cutting large sections to prove the anatomical depth of spread is likely to be valuable. Dukes has also made another interesting observation—namely, that protuberant growths are more likely to be Group A or early Group B cases without lymphatic metastasis, whereas excavated ulcers are more likely to be Group C cases, with at least a 50 per cent. probability of lymphatic spread. This observation suggests the advisability of removing ulcerated growths by an abdomino-perineal excision or by one of the several two-stage modifications which are now available; or if radium treatment is undertaken the path of upward lymphatic spread must be attacked as well as the growth itself.

WAS NAPOLEON AN EPILEPTIC?

NEARLY every writer on epilepsy enumerates the great men who have suffered from this disease, and Napoleon usually heads the list. F. M. Kircheisen [1] finds little to support this assumption. The evidence is, he says, contained in four sources—the memoirs of Lewis Goldsmith, Constant, Talleyrand, and Madame de Rémusat. Goldsmith, in a lampoon published in 1810 and widely circulated in several languages, states that a lady who was visiting Napoleon one night roused the palace with the news that he had fallen into an epileptic fit. Constant, a valet who published his memoirs in 1830, quotes the letter of a lady of the palace writing from Coblenz on Sept. 10th, 1804, in which she narrates that the Emperor had suffered on the previous night from "a severe shock to the nerves, or epileptic seizure." Nevertheless, in the same work, he states positively that Napoleon never had epileptic attacks and that the report of them was merely one of the many falsehoods concerning him which circulated among the multitude. Moreover, since on Sept. 9th and 10th Napoleon was at Aix and not in Coblenz, this particular story stands discredited. Talleyrand is a more formidable witness; he gives a circumstantial account of a seizure which occurred one evening in September, 1805, after he had dined with the Emperor. Kircheisen points out, however, that it is not likely that Talleyrand dined with Napoleon, because the Empress was at that time in Strassburg and the Emperor used then to dine only with her. Talleyrand, moreover, according to Kircheisen, was not noted for veracity; Napoleon hated him thoroughly, and the memoirs published in Talleyrand's name are a forgery by Bacourt. Madame de Rémusat burnt her first draft of memoirs and wrote the second from memory. She describes the scene related by Talleyrand as occurring in 1806, when Napoleon was leaving Mainz. Her account is rendered suspect by her statement that Napoleon was so overcome by the absence of his wife and Talleyrand that he shed copious tears and vomited. None of the four sources therefore are very convincing. Kircheisen justly points out that epileptic attacks recur and that, if Napoleon had really suffered from them, the fact would have been common knowledge to all his associates. Bourrienne, who was disgraced by Napoleon and certainly had no reason to be tender with him, states categorically that he never saw a sign of the disease in 11 years' close contact with the Emperor. It is almost conclusive that none of the medical men who attended him, and who left medical commentaries on his health, recorded that he had ever suffered from an epileptic attack. Sir Hudson Lowe, the Governor of St. Helena, would certainly have mentioned the fact had it existed. There is no doubt that Napoleon was highly neuropathic, but Kircheisen's essay leaves little ground for the belief that he was epileptic.

[1] Deut. Med. Wodh., June 20th, p. 1057.

POST-VACCINAL ENCEPHALITIS.

THE treatment of post-vaccinal encephalitis with the serum or citrated blood of vaccinated persons has been followed by remarkable results. In the first case, recorded by Sir Thomas Horder,[1] a boy, 4½ years old, received intrathecally 5 c.cm. of the serum of his mother who had been vaccinated at the same time. He recovered rapidly and completely. J. Hekman,[2] of Rotterdam, has now reported nine typical cases treated in this way between August, 1929, and February, 1930, and quotes seven others. In all but two of these 16 there was quick recovery after the serum or citrated blood of a convalescent from vaccination was administered. The dose was usually 10 c.cm. and it was almost always given intravenously. The patients were children 3½ to 11 years old, and they received the blood of the mother or father, all but one of whom had been vaccinated at the same time. One child who recovered was apparently much benefited by the serum of the father, who had been vaccinated four years before. The effect of the treatment appears to have been very striking and certainly encourages the use of similar measures in cases of this serious complication, which is said to be fatal in about 30 per cent. of cases in Holland. Those who, like Hekman, favour the view that post-vaccinal encephalitis is due to the virus of vaccinia alone, are inclined to look on the dramatic issue of the treatment as proof that their view is correct. A notable feature was the rapidity with which the symptoms disappeared after injection of serum, although the patient had been vaccinated 10 or 13 days before the symptoms began and the serum was given two or three days later still when the vaccinia vesicles were completely developed. A second important fact

[1] THE LANCET, 1929, i., 1301.
[2] Bull. de l'Acad. de Méd., 1930, ciii., 539.

was that the donors of the serum were usually at the same stage of vaccinial infection as the recipients. Hekman thinks that the rapid action of the serum suggests an antitoxic rather than an anti-infective influence.

Grüneberg [3] reports two severe cases in children of 12 years and 1 year and 9 months who made good recoveries after receiving intravenously two doses each of the serum of recently vaccinated persons in quantities of 10 and 8 c.cm. respectively. The first dose was given about the fifteenth day after vaccination and on the third or fourth day after the onset of cerebral symptoms.

SCHOOLS FOR ABNORMAL CHILDREN.

A BOOKLET issued by the Board of Education and obtainable through any bookseller [4] shows the accommodation available for exceptional children, including the blind, the deaf, the mentally defective, the epileptic, those crippled in various ways, and those suffering from rheumatism, heart disease, pulmonary tuberculosis, and ophthalmia, as well as open-air schools for the delicate. The schools are not arranged according to the various disabilities, but a clear indication of the purpose of each is given in a separate column. Thus if a place is sought for a child with a particular disability, a glance down this column will show where it may be looked for; though it must, of course, be remembered that room can seldom be found for children not belonging to the authority that maintains the school.

The list indicates that accommodation in the country as a whole is more nearly adequate than it was, especially for children classified as physically defective, but for certain other types of defect there has been little improvement. Only one of the six schools for epileptics is entirely maintained by an education authority (Manchester), and the total accommodation for the whole country is only about a quarter of what is needed. The list does not make it clear what provision exists for cases of combined defect, but there is no doubt that it is quite insufficient. The deaf who are slightly mentally deficient or merely subnormal, as well as the deaf and partially blind, are well worth training; but though they cannot profit by the oral methods most valuable for the intelligent, very few special facilities are available. The position of the subnormal blind is somewhat similar; they cannot be taught to read Braille fluently, but they are not ineducable in other ways. The Ellen Terry Home for Blind Defective Children is noted in the list, but in the past this has been occupied by sightless imbeciles and not those for whom the need of special training is urgent. Subnormal and high grade defectives suffering from epilepsy are often accepted in the schools for epileptics, while those who can be deemed imbecile or ineducable are received in many institutions under the Mental Deficiency Act; it is for the intermediate class that little is at present possible. Combined physical and mental defect of the type of the cerebral paralytics also presents great difficulty, especially when the mental defect appears to be moderate. Schools for the unstable and delinquent children are not mentioned, doubtless because they are seldom definitely under the Board of Education, but there is a little accommodation for them in some of the schools described as being conducted by voluntary bodies mainly for the mentally defective, and there are the pioneer child guidance clinics. Use might well be made of the industrial schools, most of which have been so improved and humanised that the old prejudices against them vanish when they are visited. In many the care and influence are so good that the boy who is sent there may be far more fortunate than his comrade whose delinquencies are undetected or inadequately treated.

The second part of the list deals with institutions giving higher education of cripples and others with handicaps, and includes many famous foundations like Alton and Chailey, as well as the part-time classes for the deaf and blind. Part 3 enumerates the 31 nursery schools now established. The figures of accommodation show their inadequacy, and it is noteworthy that more than half of these schools are conducted by voluntary managers. But evidently a start has been made, and from other sources it is clear that local authorities are beginning to take an interest in the work.

[3] Klin. Woch., June 14th, p. 1127.
[4] H.M. Stationery Office. Pp. 33. 9*d*.

THE "PRIMARY AVOIDABLE FACTOR" IN MATERNAL MORTALITY.

AN abstract of the first part of the interim report of the Departmental Committee on Maternal Mortality, published this week, will be found on p. 321. The section of the report which in our view deserves most careful attention is the analysis of the cause of 2000 maternal deaths by two expert obstetricians, working on behalf of the Committee. The scheme set out in the report for an adequate national maternity service is on the general lines of that published by the British Medical Association,[1] while the plea for better education of medical students, as well as midwives, in obstetrics, only reiterates, however cogently, the arguments often set out in our columns and elsewhere. But the search for a "primary avoidable factor" in each fatal case is a new method of approach which has not been limited to the examination of records. Medical officers of health, who have been entrusted with the duty of compiling these records, have been encouraged to enlist the help of a specialist in midwifery, with power to remunerate him for his services. The practitioners concerned have mostly welcomed and cordially coöperated in a calm survey of any case with a fatal issue, and its educational value to all concerned cannot be overestimated. The results of the investigation are extremely interesting. Excluding the 404 women who died from causes not due to pregnancy, there remain 1596 deaths of which 626 show a primary avoidable factor; in other words 626 deaths might have been prevented. It is in some unexpected places that error is found, and this constitutes the chief value of the report. For example, it is estimated that many lives might have been saved merely by applying to cases of ante- and post-partum hæmorrhage the accepted medical methods of replacing lost fluid, while of 218 cases of eclampsia lamentably few were detected and treated at the stage of albuminuria, when graver complications might have been avoided. Throughout the report there is evidence of a sympathetic rather than a hypercritical attitude towards the doctor and midwife, and it is because their difficulties are well appreciated that some of these difficulties, at any rate, are likely to be removed as the outcome of this inquiry.

THE Medical Research Council have appointed Major A. G. Church, M.P., Dr. F. E. Fremantle, M.P., and Sir John H. Parsons, F.R.C.S., F.R.S., to be members of their Industrial Health Research Board.

[1] See THE LANCET, 1929, ii., 195, 561.

MODERN TECHNIQUE IN TREATMENT

A Series of Special Articles, contributed by invitation.

CCCV.

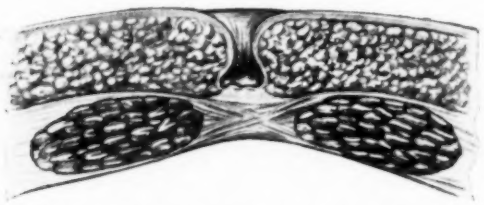
UMBILICAL HERNIA IN INFANTS AND ITS TREATMENT.

AN umbilical hernia in an infant is far more commonly met with at the present day than it was 20 to 30 years ago. Further, the mechanical treatment of such a hernia by a truss is apparently not nearly as efficacious as it was in years gone by.

The reasons for this definite increase in incidence are not far to seek. Many infants nowadays are not breast-fed, but are brought up from birth on patent foods. Such feeding predisposes to flatulence and abdominal distension, which prevent the abdominal wall musculature from acting to its greatest advantage, and which also to some extent prevent the normal development of the recti muscles. Hence at an early age the muscles of the abdomen are weak and flabby. Sooner or later the abdominal distension causes constipation, and this marks the commencement of a vicious circle. To overcome the constipation purgatives of a drastic nature are only too frequently given; the bowels very soon become exhausted, and a chronic distension ensues. Another factor contributing to the causation of an umbilical hernia is traction on the cord at the time of delivery or within a week after birth. The midwife is over-anxious for the "navel string" to separate. The mother frequently volunteers the statement that the nurse pulled off the "navel string" a few days after the child was born.

In these enlightened days the mother is usually instructed to discard the abdominal binder as soon as possible, being told that the child will grow more rapidly if it is not confined by tightly fitting garments. As an umbilical hernia does not often become manifest until some weeks after birth, it is, in my view, of the greatest importance that an infant should wear an abdominal binder until it is at least six months' old. If this advice were followed invariably there would be far fewer cases of infantile umbilical hernia attending our hospitals.

FIG. 1.



Section through the anterior abdominal wall showing the relation of the umbilicus to the recti muscles.

Mechanical Treatment.

Treatment should in the first place be prophylactic. If the causative factors enumerated above were instilled into the minds of midwives and mothers far fewer cases would require operative measures.

Undoubtedly a large percentage of umbilical herniæ in infants can be cured by mechanical means. It must be remembered that during the development of the embryo in utero an umbilical hernia is present from the fifth week to the third month, and that even under normal conditions it may be present at birth.

The normal umbilicus is a cicatricial depression in the mid-abdominal line situated about the junction of its upper three-fifths with its lower two-fifths. When observed from the front it is roughly circular and exhibits a certain amount of puckering. When viewed in cross-section the cicatrix is seen to lie immediately superficial to the crossed fibres of the rectus (Fig. 1). The upper part of the umbilicus is weaker than the lower. There is considerable separation of the recti in infants at birth, but after birth as the muscles grow they tend to approximate, and the linea alba becomes narrower. Generally speaking, the more cicatricial or fibrous tissue there is round the opening of the umbilicus, the slower its

FIG. 2. FIG. 3.

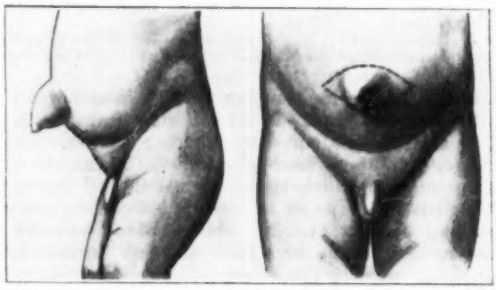


FIG. 2.—Umbilical hernia in an infant. This is the type which is difficult to cure by a truss.
FIG. 3.—Umbilical hernia showing incisions to enclose the umbilical cicatrix.

closure. Hence it is essential that no irritation be set up in its vicinity. It is important, therefore, that when treating an umbilical hernia the skin and subcutaneous tissues should not be folded in before any strapping or truss is applied.

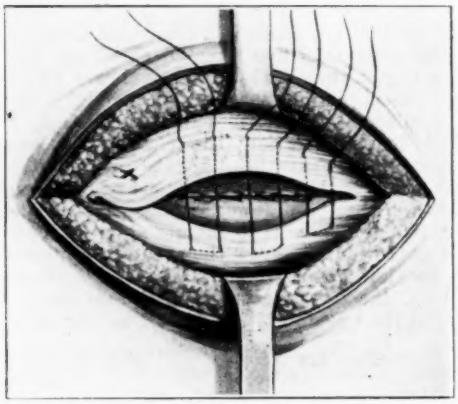
Probably the best method of mechanical treatment is to make a pad from a cork disc covered with muslin. It is essential that the disc be considerably larger than the hernial defect, otherwise it will defeat its own ends and cause the opening to become much larger. This warning may seem over-emphatic, but I have removed from infants under the age of one year ineffective trusses improvised from farthings, threepenny pieces, and sixpenny pieces. Possibly at infant welfare clinics the mother is told to make a truss from a penny or a halfpenny piece, and, left to her own resources, she considers a small silver coin would be better for her baby.

The truss should be retained in place by a piece of adhesive strapping. Should the application of the truss be difficult owing to the crying of the infant, a simple expedient which is always successful is to suspend the child by its feet and then to apply the truss.

Operation.

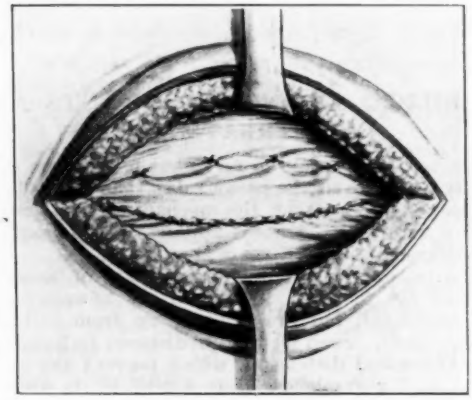
Mechanical measures should be tried for one year, and if at the end of this period the condition be stationary and the hernia a large one, operation should be advised. Some authorities state that mechanical means should be persevered with up to five years, but few mothers are patient enough to endure this, and, moreover, the skin of the abdominal wall becomes irritated after prolonged truss pressure, and the normal development of the recti muscles is interfered with. Another small but important point

FIG. 4.



The peritoneal layer is closed and mattress sutures have been inserted to produce horizontal overlapping of the rectus sheath.

FIG. 5.



The mattress sutures are tied, and the overlap is secured with interrupted sutures.

is that in a certain number of umbilical herniæ in adults there is a history of an umbilical hernia in infancy which was cured by wearing a truss. These patients would have been saved much time and trouble if an operation had been performed in childhood.

Operative treatment is always indicated in large umbilical herniæ (Fig. 2), which cannot be held in place by a bandage or truss. In such herniæ complications, such as attacks of colic, may appear and an operation should be advised before they occur.

The actual operation should be performed after the method advocated by Mayo. Transverse crescentic incisions are made above and below, whereby the hernia is encircled (Fig. 3). The sac is carefully defined and cleared of fat, and the neighbouring aponeurosis cleared for some little distance round the neck of the sac. The aponeurosis is then divided close to the neck by transverse incisions and the sac opened. The contents are now returned to the abdomen, but should any adherent omentum be present, it may be removed. Special care is directed to the margins of the opening, which must be carefully cleared. The sac, the adherent tags of omentum within it, and the overlying skin are then cut away completely, and great care must be taken to secure hæmostasis of the cut edges. The opening is now limited by two peritoneo-aponeurotic flaps, above and below respectively, and is closed by superimposing the upper flap over the lower and suturing them together by means of mattress sutures introduced through the margins of the lower flap and passed under and through the upper flap from within outwards (Fig. 4). The upper flap is then stitched over the lower, which it usually overlaps to the extent of an inch (Fig. 5). The wound is now closed with interrupted silkworm gut sutures without any drainage. The skin sutures are removed on the seventh day, and the little patient can, as a rule, be discharged on the tenth.

It is possible to preserve the umbilicus if necessary, but I do not admit the necessity. To state that for purely æsthetic reasons it is inexcusable to sacrifice the umbilicus seems to me to be overstating the case. By replacing a troublesome hernia which has been a source of annoyance for a long period by a neat horizontal scar the surgeon should give complete satisfaction to the infant's fond parents.

Years ago operating on infants for inguinal hernia was regarded with great aversion. To-day this is no longer the case; infants of all ages are constantly being operated upon for this form of rupture, and the time has surely arrived when more attention should be paid to the treatment of large umbilical herniæ occurring in infants.

CECIL P. G. WAKELEY, F.R.C.S. Eng., F.R.S. Edin.,
Surgeon to King's College Hospital and to the Belgrave Hospital for Children.

THE SERVICES

ROYAL NAVAL MEDICAL SERVICE.

Surg. Comdr. G. D. Walsh is placed on retd. list with rank of Surg. Capt.

The following appointments are notified: Surg. Lt.-Comdr. G. S. Rutherford to *Pembroke*, for R.N. Hospital, Great Yarmouth. Surg. Lts. J. M. Sloane to *Adamant*; J. G. Ollerenshaw to *Emerald*; and F. L. A. Hughes to *Cyclamen*.

ROYAL NAVAL VOLUNTEER RESERVE.

The following appointments are notified: Surg.-Lts. D. C. Wilson to *Albury* and H. Winstanley to *Pembroke*, for R.N. Barracks. Proby. Surg. Sub-Lt. A. J. W. Beard to *Emperor of India*.

ROYAL ARMY MEDICAL CORPS.

Col. T. E Fielding, late R.A.M.C., having attained the age-limit for compulsory retirement, is placed on retd. pay.

Lt.-Col. W. D. C. Kelly, from R.A.M.C., to be Col.

Maj. (temp. Lt.-Col.) W. Mitchell to be Lt.-Col., vice Lt.-Col. W. D. C. Kelly.

Maj. E. B. Lathbury to be temp. Lt.-Col.

The undermentioned Lts. to be Capts.: E. H. Hall (prov.), G. A. Walmsley, A. Sachs, R. A. M. Humphrey, R. T. P. Tweedy, W. R. C. Spicer, G. T. L. Archer, and M. R. Burke.

Maj. A. S. Cane retires on retd. pay.

Lt. (on prob.) J. Beggs is secd. under the provisions of Art. 205, Royal Warrant for Pay and Promotion, 1926.

C. S. Gross is granted a temp. commn. in the rank of Lt.

ROYAL AIR FORCE.

Dental Branch.—Wing Commander C. L. Colbran (Lt.-Col. Army Dental Corps) is granted a permanent commission in this rank.

Capt. G. A. Ballantyne (Army Dental Corps) is granted a permanent commission as a Flight Lt.

The undermentioned are granted non-permanent commissions as Flight Lieutenants: Flight Lts. R. G. J. Charlesworth and H. I. Clapperton (temp. Capts., General List, Army, Dental Surgeons); Flying Officer P. M. Margand (temp. Lt., General List, Army, Dental Surgeon).

F. B. Sumerling is granted a non-permanent commission as a Flying Officer.

INDIAN MEDICAL SERVICE.

Capt. D. H. Mirchandani, late I.M.S. (T.C.), relinquishes the rank of Capt.

SPECIAL ARTICLES

MEDICINE AND THE LAW.

Successful Objection to Coroner's Finding.

THE High Court quashed another coroner's inquisition on July 24th. The inquest related to the death of a woman at Nottingham, and the finding to which objection was taken was that she died by falling downstairs "when under the influence of drink." The only evidence to justify the words quoted was that of her husband. Asked by the coroner: "Had she had any drink?" he replied, "Yes." The deceased had in fact had less than one glass of beer at a friend's house. The husband, if questioned further, would have said that she was a woman of temperate habits and was perfectly sober immediately before the accident. Her son and other witnesses were prepared to say the same. The Lord Chief Justice, who sat with Mr. Justice Avory and Mr. Justice Wright, said that the coroner's finding, involving a reflection on the dead woman, was arrived at on insufficient inquiry. On that ground the inquisition would be quashed and there would be a fresh inquest before another coroner.

This is the third occasion in the past six months on which THE LANCET has recorded the quashing of an inquisition. It need not be assumed, however, that the percentage of irregularities in proceedings before coroners is high. Though it may be tempting to compare the figures of quashed inquisitions with the statistics of convictions and sentences quashed by the Court of Criminal Appeal, the totals are not comparable. Persons convicted at quarter sessions or assizes have every opportunity of appealing; irregularities seemingly trivial and technical are often relied upon. On the other hand, coroners' inquisitions are not quashed for trifling irregularities, nor are inquests brought before the High Court for review unless there has been some patent and conspicuous cause of complaint. In the latest year for which statistics are available (1928) there were 31,553 inquests. During the same period some 7000 persons were indicted at quarter sessions and assizes. On review by the Court of Criminal Appeal, 22 convictions were quashed during 1928, convictions for another offence being substituted in two of these cases; 22 sentences in addition were quashed and other sentences substituted. More convictions are quashed than inquests, although the total of inquests held in the year is more than four times that of the total relevant criminal trials. Nevertheless coroners have need to be careful; there are impatient critics of their ancient office. In the Nottingham incident it is a pity that the witness did not find tongue to correct any possible misunderstanding. In the official statistics of inquests there is a separate class for deaths found to be due to drink. The finding which has been quashed might have misled the statistician, a result less unfortunate than the unjustifiable reflection upon the deceased which so much judicial effort has been needed to correct.

Professional Secrecy.

The court, as usual, over-ruled a protest made a few days ago by a medical witness who was being asked to disclose information about a patient. He was present on subpœna at the instance of a wife who was petitioning for divorce from her husband in undefended proceedings. The medical practitioner had attended the husband and was required to answer a question regarding his patient. The President of the Divorce Court directed that the evidence be given. The witness, before giving it, explained that he had his patient's written permission; otherwise he would have refused even at the risk of the personal consequences of disobedience to the court's direction.

The moral duty of professional secrecy is universally accepted. In the present state of affairs it is deemed cancelled either by judicial compulsion or by the patient's permission, and both these elements were present in the instance under discussion. Nevertheless the witness's resistance was not an idle exhibition of heroics. Such public protests are necessary if the present position is to be changed. Is there any adequate reason why the relationship of doctor and patient should be less privileged than that of solicitor and client? No solicitor is compelled to disclose in court his client's confidences. The legal profession enjoys complete privilege in professional matters. The benefit, of course, is that of the client not of the solicitor. Similarly, the patient should have the benefit of complete privilege as regards the non-disclosure by the doctor of details of health and treatment. Are members of the public less anxious for secrecy when they consult their medical than when they consult their legal adviser? Is the encouragement of frankness less desirable in the one case than in the other? The public sets a high value upon professional secrecy. It should insist on the fullest possible protection against disclosure. The medical profession will be willing enough to comply; it has its own tradition in the matter.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

DIETETIC THERAPEUTICS OF TUBERCULOSIS OF THE SKIN.

AT one of the recent meetings of the Wiener Gesellschaft der Aerzte Prof. Volk discussed the dietetic treatment of tuberculous lesions of the skin, which has received much attention of late. Prof. Volk emphasised the error of applying the expression "Gerson's" diet to this method, since Gerson's diet causes an alkalæmia, whereas an acidæmia is aimed at by Hermannsdorfer and Sauerbruch. The essentials of the diet recommended by the last-named observers are: (1) the exclusion of sodium chloride or its reduction to a minimum. (2) an attempt to effect a "transmineralisation" by giving the patient copious quantities of fresh, if possible uncooked, vegetables containing different salts and vitamins. The best results attained by this method have been in cases of lupus, which have made astonishing progress. In the special Lupus Institute of Vienna, which Prof. Volk controls, a special dietetic kitchen has been opened, out of which over 80 patients are supplied. The involution of the lesion takes place either without any reaction, the œdema disappearing and the nodules being replaced by an atrophic scar, or, in other cases, a reaction of the tissues takes place, with hæmorrhage, or even slight necrosis. These changes are followed by rapid healing, and may be manifest in different parts of the affected areas at

different times. In Prof. Volk's clinic the dietetic treatment is sometimes augmented by a combination of helio- and hydro-therapy, applied with due care, since the skin of such patients is extremely susceptible to external irritations. Temporary reactions, even psychical depressions or maniacal conditions, have been observed, but may be avoided if care is taken. Tuberculous patients seem to be specially liable to reactions such as a rise in temperature and increased secretion of sputum. Other dermatoses besides lupus have been treated with a salt-free diet and have responded favourably, notably some cases of pemphigus, psoriasis, and conjunctivitis eczematosa. One case of a very old-standing X ray ulcer was noted as especially favourable. Other authors have reported good effects in eczema, but it is unanimously agreed that tuberculous affections of the lungs are not affected by this diet; even in affections of the bones no remarkable results have hitherto been obtained.

MITOGENETIC RAYS.

Dr. G. Politzer, at the same meeting, read a paper on the present knowledge relating to the mitogenetic rays discovered by Alex. Jurwitsch in 1923.[1] He showed that from the roots of onions rays are emitted, which cause increased proliferation of cells and karyokinesis. Since then different observers have shown that numerous other plants and animal cells emit such rays. In man the normal blood, the voluntary muscles, and the bone-marrow emit rays which affect bacteria and certain kinds of yeast. The importance of these observations lies in the fact that malignant growths have a much stronger tendency to emit these rays than benign growths, and that in persons suffering from carcinoma or sarcoma the blood soon loses its property of emitting this kind of ray. The possibility exists that this phenomenon might lead to a means of early diagnosis of cancer if a practical detector for these mitogenetic rays could be found. Hitherto all the methods of detection suggested have been complicated and tedious to apply. Prof. Sternberg, Dr. Stempel, and Dr. Paltauf have recently investigated a new optic method, but this does not seem to give reliable results. At the moment, therefore, these rays are still only of theoretical interest to medical men.

RESECTION OF THE STOMACH IN OLD PEOPLE.

Patients over 60 years are, even nowadays, only rarely subjected to an extensive operation on the stomach, since the risk is deemed too great. The diagnosis of a malignant stenosis of the pylorus calls for operation even in quite old people, and even in less urgent conditions it may be justified. Prof. Finsterer recently showed two cases with the following histories. The first patient was 81 years old. Nine years ago he had an operation for an ulcer which had invaded the pancreas. The operation was performed under splanchnic anæsthesia, two-thirds of the stomach being resected. The patient still enjoys full health. The second man is now 80 years old, and has been suffering for 30 years from recurrent pains in the stomach and attacks of vomiting. The pain has increased since 1924, but operation was not considered owing to the age of the patient. In 1927, however, he had an attack of such severe pain that he demanded operation, however great the risk. Under splanchnic anæsthesia a callous ulcer was found on the lesser curvature near the pylorus. Half the stomach had to be removed with typical end-to-side anastomosis. In neither case was the ulcer malignant. Prof. Finsterer said that he has operated on 1400 patients of advanced age for similar conditions, and as a result of his experience believes that they should be given a chance.

[1] See THE LANCET, 1930, i., 1416.

THE LATE PROF. EMIL REDLICH.

After a rapidly progressing illness, Prof. Dr. E. Redlich, the well-known neurologist, died in his sixty-fourth year. From the outset of his medical career Redlich specialised in neurology, and he served as assistant in the neurological and psychiatric clinics of Vienna until, in 1907, he was elected chief of the neurological institute endowed by the Vienna branch of the Rothschild family. His scientific work was extensive, and there is no chapter in neurology to which he did not add a useful contribution. Redlich's splendid diagnostic powers and profound knowledge brought him deserved success in private practice. During the war he organised a special department for the patients suffering from injuries to the head, and his monograph on gun-shot wounds of the skull is a standard work. He has also taken great interest in encephalitis lethargica.

UNITED STATES OF AMERICA.

(FROM AN OCCASIONAL CORRESPONDENT.)

SUPPLY OF RADIUM.

THE American Society for the Control of Cancer shows that only about 64 grammes of radium are available in this country. This is probably about the same amount as in France and twice what there is in Great Britain. Nearly 200 g. have been extracted from carnotite ore in the United States (Colorado and Utah) but most of this was absorbed in the manufacture of radium paint for war purposes and the ore which used to give 2½ to 3 per cent. of U_3O_8 is now exhausted. The yield of the remaining ore is about 1½ per cent. and the cost of production is prohibitive. The total amount of radium produced in the world is estimated at between 500 and 550 g. How much of this has been dissipated in the manufacture of luminous paint, especially during the war, is not known. The remainder could no doubt be used more efficiently if it were concentrated in recognised centres for the treatment of cancer, but this does not seem to be a practicable solution.

FEDERAL AGENTS PROVOCATEURS.

The antinarcotic administration of the Federal Government has recently come in for criticism, especially because of the employment of the *agent provocateur*. The Ohio State Medical Association points out that physicians have been prosecuted and fined for slight technical errors and that recently an honoured member of the Association, 71 years of age, was imprisoned in the Canton, Ohio, workhouse for nine months for dispensing tablets to an addict employed as a detective. The resolution points out further that the Federal Government has provided no institutional treatment for drug addicts but has issued a technical ruling that no ambulatory patient may be given a prescription for reduction treatment. The narcotic administration seems also to enrich itself on occasion by compounding with pharmacists who have unwittingly committed some technical violation of the highly complicated law.

RESEARCH IN SYPHILIS.

At a meeting of the Committee on Research in Syphilis held recently it was reported that grants totalling $91,515 had been allocated to twenty

different investigators. Five clinics have been established in which attempts are being made to establish criteria of cure and to study reinfection, relapse, and the development of complications. The Committee is chiefly engaged at present in studying the results of treatment in early and latent syphilis. Some 3000 case-histories are already available and they are being analysed by statisticians of the U.S. Public Health Service. The first results of the study will be announced in a paper on infectious relapse to be presented to the International Congress at Copenhagen in August.

PUBLIC HEALTH SERVICES

REPORTS OF MEDICAL OFFICERS OF HEALTH.

THE following are 1929 statistics of two counties, one English and the other Scottish, of a county borough, and a burgh, and of two combinations of county districts.

Name of district and estimated (R.-G.) mid-year population.	Birth-rate.	Death-rates per 1000 of the population.					Death-rates per 1000 births.		
		All causes.	Tuberculosis.	Cancer.	Respiratory diseases with influenza.	Heart disease.	Infant and neonatal mortality.	Young child (1–5 yr.) mortality.	Maternal mortality from childbirth.
Surrey .. .. (861,850)	14·4	11·7	0·69	1·43	2·3	2·1	50/—	20	3·1
Dumfries .. (43,499)	18·9	16·4*	0·78	1·82	3·9	2·2	84/42	28	9·7
Plymouth .. (199,000)	16·5	13·5	0·95	1·49	3·1	1·7	59/31	33	4·8
Paisley .. .. (87,447)	20·5	15·1	1·01	1·54	3·7	2·2	89/42	46	3·3
West Gloucestershire C.D. (51,987)	16·8	12·6	0·54	1·52	1·9	2·7	63/42	24	6·9
Isle of Sheppey J.D. (25,735)	14·0	10·6	0·62	1·32	1·9	2·1	48/21	21	8·1

Stillbirths per 100 live births: Surrey 3·3, Dumfries 5·2, Plymouth 4·2, Paisley 5·0, Isle of Sheppey 4·6.
* Standardised 14·6. C.D. = Combined District. J.D. = Joint Districts.

Surrey.

Dr. J. Ferguson records a reduction in maternal mortality from childbirth to 3·1 from 4·9 in the previous year. In April, 1929, a medical officer with special experience was appointed to conduct 15 special antenatal clinics distributed through the county. Up to the end of the year 581 women attended for antenatal advice, and 89 for post-natal advice. The County Sanatorium at Milford was opened in October, 1928; by May 7th, 1929, the 298 beds were occupied and since then there has always been a waiting-list. Of the 795 patients admitted during the 15 months 280, or 35 per cent., had no tubercle bacilli in their sputum, but 67 of them showed tubercle bacilli after admission. Of the 435 discharged 143, or 33 per cent., never showed tubercle bacilli in their sputum. The average duration of stay before discharge was 134 days, and before death was 76 days. The number of bed patients was much larger than anticipated, and there is some difficulty in housing a staff capable of dealing with them. An improvement is expected when far advanced cases can be diverted to other county institutions. Artificial pneumothorax is performed in all suitable cases, patients returning for refills after discharge. There are approximately 1200 registered cowkeepers and 18,000 dairy cows in Surrey. During the last quarter of 1929 all the herds were examined. Mr. F. W. Medlock, the chief veterinary officer, points out that the value of routine examination is not only in the detection of cows with tuberculous udders, open cases of tubercle, and other pathological conditions, but it also facilitates education with respect to the hygiene of cattle and the prevention of disease. On inspection 7 cows were found to be giving tuberculous milk, 11 had tuberculous emaciation, and 20 had tuberculosis of the udder. The outside complaints of tuberculous milk numbered 18. In eight herds one or more animals were found to be giving tuberculous milk. One cow slaughtered showed tubercle of the udder. In six instances cows had been slaughtered or got rid of after the sample was taken, and the remaining members of the herd gave non-infected milk. In one case, where the complaint mentioned acid-fast bacilli resembling *B. tuberculosis*, the biological test was negative. The autopsy on 18 out of 19 animals whose milk was proved microscopically to be tuberculous showed advanced tuberculous lesions. The remaining animal was slaughtered by the owner before the result of the examination was known. Mr. Medlock notes that there is considerable misunderstanding by the public of the nomenclature adopted for graded milks. An expenditure of £20,000 has been undertaken as an unemployment relief scheme for the clearing and improvement of the river Wandle.

Dumfries.

Dr. John Ritchie ascribes the increased death-rate chiefly to influenza in the early part of the year. There were 54 deaths from influenza and 63 from pneumonia, against 11 and 35 in the preceding year. In 1929 the prevalence of scarlet fever was mainly in isolated country districts. The notifications of puerperal fever showed an increase, probably because the provision of hospital accommodation secures more effective notifying. A case, which was admitted to hospital as erysipelas, was finally diagnosed as "sokodu" or rat-bite fever, and made a good recovery. Another local case of the same disease was treated in hospital in 1914. The county veterinary inspectors, Mr. F. A. Davidson and Mr. G. A. Sangster, report an increase in the dairy farms owing to the opening of a new creamery at Carlisle. The new firm collects the milk at the farms, and the premises of cowkeepers who were registered for the first time as dairy-farmers have needed reconstruction. Contagious abortion is still on the increase, and as there is no evidence of undulant fever it is suggested that there are probably several strains of the organism which causes the disease in cattle. Regular inspection is leading to the earlier discovery of tuberculosis in cows, and the "not advanced" cases now exceed the "advanced" among the animals slaughtered. Bacteriological examinations have increased in number owing to the difficulty of distinguishing certain types of contagious mastitis from tuberculous mastitis. The use of a mild antiseptic for washing the hands of milkers and the cows' udders has tended to decrease the number with sore teats. The veterinary inspectors give reasons for suggesting that the designation "Certified" and "Grade A" should be dropped, and that "Grade A (T.T.)" and "pasteurised" should be the only designations.

Plymouth.

Dr. A. T. Nankivell, as in past years, includes reports by medical members of his staff on various sections of the work. Referring to the continued high maternal mortality, he suggests as remedies: (1) better education of doctors and midwives;

(2) greater use of antenatal clinics; and (3) the provision of a city maternity hospital. Dr. Marion Smellie says that during 1929 1100 pregnant women attended the clinics, including 414 primiparæ, but only 161 came back for postnatal examination. A post-graduate course held in October was attended by 68 midwives. Immunisation against diphtheria is becoming more popular. Preliminary Schick testing is only used in children of 9 years and over. During the year 259 susceptible children were made Schick negative. It has been found more satisfactory to give the three injections at monthly intervals, and a Schick test five weeks after the third injection. Dr. E. J. Hynes complains of the number of cases of diphtheria still admitted to hospital in a hopelessly advanced stage of the disease. Apparently practitioners of the district do not even now realise that a negative swab does not exclude diphtheria, and that in suspicious cases antitoxin should not be withheld pending the pathological report. Scarlet fever serum has been found useful when given during the acute stage of the illness, as well as for the temporary immunisation of contacts. Its supply free of charge to hospitals and institutions is advocated. Dr. Mildred Thynne says that investigation showed 8 per cent. of children from 1 to 5 years on the register of the centres to have threadworms. The affected children sometimes come from good homes. It is hoped to overcome the apathy of parents with regard to this complaint. Dr. Nankivell is disappointed at the slow progress with regard to three insanitary areas scheduled four years ago. There is still a shortage of houses. Dr. Nankivell has strong views on the propagation by feeble-minded and mentally defective. He quotes the recent remarks of a high court judge in support of sterilisation, and insists that the problem created by the steady and uncontrolled growth of these degenerates, who increase at the rate of about 2500 every year, must be faced by hard thinking.

Paisley.

Dr. G. V. T. McMichael's report shows that housing is the dominating problem at Paisley and intensifies the need for hospital provision for cases of tuberculosis, pneumonia, infectious diseases, and maternity cases. 15·1 per cent. of the dwellings are one-roomed, and 47·8 two-roomed; 572 houses are unfit for human habitation and past repairing. About 30 per cent. of these small houses are overcrowded, and there may be as many as nine persons in a one-roomed house. The council have decided to proceed with the erection of 125 two-roomed and 375 three-roomed houses at rentals approximating those of the uninhabitable houses—£12 to £15 per annum respectively. The death-rate was the highest since 1924. Nearly one-fifth of all the deaths were ascribed to influenza and pneumonia, though 534 of the 738 notified cases of pneumonia were treated in hospital. The numbers admitted to Barshaw maternity hospital —326 for confinement and 166 to the antenatal wards—taxed the accommodation, and extra sessions and an increase of staff are required to enable a postnatal clinic to be established. The maternal mortality was the lowest on record, with no deaths from puerperal sepsis. The dental clinic was attended by 64 mothers and 369 pre-school children. According to Mr. A. M. Marshall, the senior dental surgeon, the condition of the teeth of the school entrants is still deplorable and his work would be much more effective if more time and money were spared for the pre-school child. He estimates that 5000 children enter the Renfrewshire schools annually with 20,000 teeth requiring treatment. Only 48 persons died of pulmonary tuberculosis, giving a rate lower than ever before, but 40 deaths occurred from non-pulmonary tuberculosis. Little progress was made with the proposed joint county sanatorium.

West Gloucestershire United Districts.

The rural districts of East Dean, Gloucester, and Lydney, and the urban districts of Awre, Newnham-on-Severn, Westbury-on-Severn, and Coleford (added in 1926) comprise the area under the control of Surgeon-Captain O. W. Andrews. It is hoped that by the end of 1930 water will be laid on to the houses in most parts of Coleford and West Dean. Newnham Urban District Council has taken over the proprietary water-supply, which is to be augmented by the driving of an adit into the hillside. A table shows that the death-rate from tuberculosis has been reduced from about 1·0 to about 0·5 since 1913, but that from cancer has risen during the same period from about 0·8 to 1·5. Surgeon-Captain Andrews is an advocate of sterilisation for the mentally deficient. Housing has made progress in the districts most in need, whilst in certain parts of the area the population has declined. The advantage of the keeping of goats by poorer families living near a common is emphasised, with especial reference to those districts where all the milk is bought up by factories.

The Isle of Sheppey Joint Districts.

This area includes: Sheerness (p. 16,890), Queenborough (p. 3189), and Sheppey (p. 5656). Dr. W. C. D. Hills states that there are no hospitals in the island, with the exception of the poor-law institution at Minster, which it is hoped will soon be converted into a general hospital with maternity wards. The bridge connecting the island with the mainland has been made free from tolls. Eight cases of small-pox occurred in Sheerness and three in Sheppey. The three districts are, to some extent, combining their sewerage arrangements. The housing question is an important one in Sheerness, which also needs a public supply of hot baths. Anti-mosquito work is in constant operation in all three districts included in this area. The maternity and child welfare work in Queenborough has been transferred to the county and a local nursing association has been established with a district nurse-midwife resident in the borough. Antenatal consultations have made a beginning. The increasing urbanisation of parts of the rural district makes greater attention to the water-supply necessary.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED JULY 26TH, 1930.

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 109 (last week 126); scarlet fever, 1750; diphtheria, 1278; enteric fever, 113; pneumonia, 467; puerperal fever, 33; puerperal pyrexia, 99; cerebro-spinal fever, 16; acute poliomyelitis, 17; acute polio-encephalitis, 2; encephalitis lethargica, 14; continued fever, 1; dysentery, 14; ophthalmia neonatorum, 115. No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the London County Council on July 29th–30th was as follows: Small-pox, 221 under treatment, 4 under observation; scarlet fever, 1809; diphtheria, 2000; enteric fever, 33; measles, 259; whooping-cough, 84; puerperal fever, 25; (plus 15 babies); encephalitis lethargica, 120; "other diseases," 24. At St. Margaret's Hospital there were 16 babies (plus 9 mothers) with ophthalmia neonatorum.

Deaths.—In the aggregate of great towns, including London, there were no deaths from small-pox, 3 (1) from enteric fever, 22 (7) from measles, 7 (1) from scarlet fever, 12 (2) from whooping-cough, 39 (9) from diphtheria, 42 (10) from diarrhœa and enteritis under two years, and 17 (3) from influenza. The figures in parentheses are those for London itself.

Four of the deaths from diphtheria were in Liverpool, 3 in Manchester, and 2 each at Bristol, Chester, Halifax, Leeds, and Sunderland. Four deaths from diarrhœa were reported from Birmingham, 3 from Coventry, and 2 each from Nottingham, Manchester, Salford, and South Shields.

The number of stillbirths notified during the week was 267 (corresponding to a rate of 40 per 1000 births), including 50 in London.

CORRESPONDENCE

THE TREATMENT OF PULMONARY TUBERCULOSIS IN SWITZERLAND.

To the Editor of THE LANCET.

SIR,—Dr. Harrison's article deserves a wide popularity for it illustrates a very human failing—that of following the herd. Because treatment in Switzerland is thought to be the best obtainable no trouble is taken to ascertain if this is actually the case, or whether equally good treatment can be obtained in England. Owing to the popularity of treatment in Switzerland people are eager to tell of their cures and reluctant to tell of their failures. The chief criticism I have to offer is that Dr. Harrison's views are expressed too mildly. As the tourist industry in Switzerland is the chief it is exploited to the utmost in the case of patients in a sanatorium. They are regarded as guests in a hotel rather than patients in a hospital, and little attempt is made to treat them with a view to giving the best chance of recovery. To my own knowledge patients are encouraged to go to dances against their inclination, and also to a weekly cinema which would not be a financial success if a sufficient number were not present.

My own personal observations lead me to believe that it is a great mistake that phthisical patients should be banished to a foreign country where home comforts and familiar ways are absent and where a necessarily prolonged treatment is begun under such discouraging conditions.—I am, Sir, yours faithfully,

London, July 28th, 1930. M. G. DAVIS.

To the Editor of THE LANCET.

SIR,—The fresh-air idea is not likely to be given up in the treatment of pulmonary tuberculosis. Fresh air can be found anywhere, but at high altitudes it is rarefied and is rich in actinic rays, independent of direct sunshine. In consequence of the low barometric pressure the blood condition of patients improves. The increase of the red blood-cells is not a temporary one, but remains on descending to the lowlands once again. (In this connexion experiments with anæmic patients are hardly to be mentioned.) Furthermore, the blood tests—sedimentation and differential cell count—show greater and quicker improvement under treatment than at lower altitudes. Physicians who have to deal with tuberculous patients know the importance of this fact and the improved bodily metabolism cannot be overlooked.

Besides the richness of sunshine, the high altitudes offer an unrivalled richness of ultra-violet rays. Even without sun and on snowy days our patients become sun-burnt, and the effect of this ultra-violet irradiation on metabolism and the blood condition is very important. The dryness of the air makes it possible for our patients to spend most of the hours in full winter out of doors, even without sunshine, which by the way is present for weeks in full glory at the time when there is only mist and fog in England. It is not true "that 19 out of 24 hours" of each day must be strictly spent within doors. On the contrary, 8–10 hours can be easily spent out of doors in the cold and dry air, and even our bed-patients can be rolled out in their beds on to their balconies during the greater part of the day. During intense cold weather (a rarity) it is, of course, necessary to regulate the closing of doors and windows more than in the lowlands; but one is not obliged to close them entirely. The amount of fresh and good air available at night is more beneficial than a whole roomful of damp, moist, and smoky air in the lowlands. Certainly there are days with bad weather when the open-air cure is restricted, but these are exceptions, and there is hardly a day in winter or summer when a patient cannot be out of doors. And what is happening to the patient in damp England at that time in the winter? Remembering the climate at home English patients are often astonished to hear that out here they can "cure" out of doors in bed and on their chairs in bad weather.

It is only for a very short time during the shortest days of the year that "the sun is only visible over the mountain tops for about five hours a day." How long does the sun at this time appear in England and with what strength? Dry snow and cold are far better than rain and mist in the lowlands just at that time. The same is true of the so-called "snow melting time." The weather then is either beautiful, warm, and sunny, or snow falls, and this is preferable to the treacherous, windy, and damp weather with April showers then prevailing at the low altitudes. The patients in our Swiss sanatoriums can find as much occupation as in the English ones and can watch the winter sports quite well without risk of being debilitated (as Dr. Harrison suggests) by the intense cold on the ice-rinks, &c. They can drive about in the sunny country, play games, hear good music, and have cinema shows even in the sanatorium and—what is certainly very helpful and must not be overlooked—they can mix with people of other nationalities, learn other languages, and understand customs and doings other than those of their home islands. In long years I have never heard any complaint about the "monotony" of the winter landscape, which changes every day. What about the monotony of a sunless misty winter period in England? And the "same dreary tramp along a very ordinary road with the perpetual snow all round" has a lot of variety. All the woods are open for walks, squirrels are playing, birds are flying about, both so tame as to come to one's hand; and one can see people ski-ing and tobogganing. I am told that in some English sanatoriums there is a "variation" of walks, one for Monday, one for Tuesday, one for Wednesday, and so on. Well, is this less monotonous than to know the menu of the meals for each day of the week and with the perpetual damp and cloudy atmosphere around?

Hundreds of physicians knowing the high altitudes and many thousands of patients, are convinced that, though not a panacea, the high altitudes will always have great advantages in the fight against tuberculosis. Apart from the physiological elements there are results to be considered. A great failure—I speak from bitter experience—comes from the fact that often patients who are sent out to our altitudes are ordered back at a certain time regardless of their present condition. Thus English patients who have been doing well during the winter are obliged to break off their treatment too early and grow worse at home. If they were allowed to remain out during the spring and summer they would continue to improve. I cannot over-emphasise the importance of continuous treatment at high altitudes; it is far preferable to "wintering" only.

Large statistics of permanent results—seven, ten, or more years after the termination of the treatment at high altitudes—have been drawn up by Turban, at Davos, by Ruge and Bernstain-Kohan, and by myself, at Arosa, and by others. They speak for themselves. Of course, a larger experience by Dr. Harrison than mine will be welcome; I personally base mine only on 31,000 patients treated at Arosa—patients from countries all over the world. However this small material, together with observations made during travel over nearly the whole world and examination of patients everywhere, has convinced me more and more of the superiority of the treatment of pulmonary tuberculosis at high altitudes. Thousands of records of English patients of mine who had failed to improve in England and have found their healing up here, confirm this my conviction.

I am, Sir, yours faithfully,

O. AMREIN,
Medical Superintendent of the Altein-Sanatorium and the Sanatorium Furka, Arosa.

Arosa, Switzerland, July 26th, 1930.

AMERICAN STUDENTS AT BRITISH UNIVERSITIES.

To the Editor of THE LANCET.

SIR,—I read with a great deal of interest your editorial concerning medical students from the United States in English universities in the June 7th issue of THE LANCET. You will, perhaps, be interested to learn how this situation is viewed by some people in the United States. There are three groups of students who leave the United States to go to English universities to pursue medical studies. The first, group 1, and perhaps the only group actuated by praiseworthy motives, are the post-graduate students. These are men and women who have secured their medical education in the United States, have earned the degree of Doctor of Medicine, and have been licensed to practise. They usually cross the ocean to acquire more knowledge and greater proficiency in a particular preclinical science or specialty. Very often such post-graduate students are sent to London on a scholarship by the hospital in which they have completed their internship. In all instances they are men and women who reflect creditably upon themselves and the institutions in which they carry out their studies.

The remaining two groups (groups 2 and 3) are the undergraduate students. The first of these (group 2) comprises those who have completed their pre-medical requirements and have not as yet begun the study of medicine. The greater majority of these apply for admission to American medical schools. More than can possibly be accepted are eager to gain admittance, and of these those practising the highest grades and greatest promise for success in medicine are accepted. The remaining number must seek education elsewhere. The most natural place is England. They have found from previous experience that when chances of being accepted in an American medical school are gone it is quite easy to gain admission to an English school. Those who are of Italian descent just as readily gain admission to the Italian medical schools. This in no way reflects with any credit on either the English universities or Italian schools. Those of us who have secured our undergraduate medical training in American medical schools regard those Americans who have been educated in English schools as inferior. This is natural, because the English universities have recognised what the American schools have rejected.

There are, of course, those who have always evinced a desire to study only at an English medical school and have applied to no American medical school for admission. Such persons should be admitted, if they possess the right qualifications, to English universities, and if the English schools would limit their choice to such applicants they would gain much in prestige among Americans. It is quite easy to learn just who such persons are. Everyone applying to an American medical school is recorded by the American Medical Association. If he applies to a dozen medical schools this fact is noted as many times. The procedure for the English university authorities to follow would be to write to the American Medical Association regarding any application they received from the United States. If he had applied to American medical schools and had been rejected this fact would be known. They then could refuse admission to such a student. If he had only applied for admission to the British medical school this would also be known to the American Medical Association. The latter type of student is, on the whole, much more desirable. He has not been found unsuitable by the American schools.

The third group of students are those who have had some undergraduate medical training in the United States and who find it impossible to continue their training here. It is then natural for them to apply to English medical schools for the completion of their medical course. This group comprises those who have been expelled either because of poor scholarship or because of serious flaws in their moral make-up. Any medical student expelled from an American medical school has his name sent to the American Medical Association from where it is sent to the deans of the accredited medical schools in the United States. Such a student can never enter another American medical school. There is but one thing for him to do if he desires to continue his medical training, that is to apply to an English medical school

There is a solution to this problem. It should be made a matter of routine of the admitting board of every English medical school to write to the American Medical Association concerning each application they receive from the United States. They would then be in possession of the facts and would be able to decide intelligently just who is worthy of admission to the English medical schools.

Very cordially yours,

July 8th, 1930. EDWARD PODOLSKY.

*** With regard to Dr. Podolsky's group 2 the facts are not in accordance with our experience. It is the considered judgment of those most competent to form an opinion, voiced by Dr. Colwell, secretary of the Council on Medical Education, in a letter to the American Consul in Edinburgh, that "all those who are quantitatively and qualitatively qualified do secure admission to approved medical colleges." That agrees with the statement in THE LANCET published after an investigation made some 18 months ago with the assistance of the deans into the medical curriculum of 12 great American universities. (Special Supplement of THE LANCET on "Medical Education in the United States," Jan. 5th, 1929.) That the rejected naturally obtain education in England does not tally with the experience on this side. For example, of 800 American applicants at the University of Edinburgh in 1930, 11 were accepted, their testimonials being generally in the form of a letter direct from dean to dean. In group 3 there may be many students who apply in this country for admission, but, so far from it

being quite easy, it is quite difficult to learn their records in the absence of Statutory bodies in the United States with whom to communicate. The size and influence of the American Medical Association is not in question, but it has not the necessary constitution to enable it to act in the way suggested. There are, however, in the United States four bodies which might be recognised as having a Federal position, and unhampered by the Doctrine of States Rights. It is to be hoped that in one or other of these directions our General Medical Council may find a way to the institution of that reciprocity for which the members of the Council and leaders of educational thought in America have been working intensively for some time.—ED. L.

THE INTERPRETATION OF DENTAL RADIOGRAMS.

To the Editor of THE LANCET.

SIR,—It is unfortunate that Mr. Pitts, judging from his letter in your issue of July 26th, has not made himself familiar with the literature of his subject or with present-day circumstances. He states "If Dr. Brailsford would refer to Weston Price's book on dental infections, he will find there an instructive chapter on the capabilities and limitations of X rays." May I state that if Mr. Pitts would refer to an article on this subject in the *British Medical Journal* of June 16th, 1928, or the reprints of this article which appeared in the *Dental Surgeon* on July 14th, 1928, in the *Medical Annual* for 1929, and the *Mouth Mirror*, he will see from my criticism that I had read Weston Price's book, but that my experience was not in entire agreement with his conclusions. In this article I stated :—

"Weston A. Price, who with a team of dental surgeons, bacteriologists, and laboratory workers has carried out a very extensive investigation on dental sepsis, considers that 10 per cent. of the teeth with septic roots give no indication of this on the radiograph; but even so, most of the process illustrations which he used in describing the 'failure' of the radiographs showed definite though 'slight' changes, yet process illustrations cannot give the detail of the original radiographs. There is no doubt in my mind that the figure of 10 per cent. can be considerably reduced by skill in the radiographic technique and the care exercised in examining and interpretating the radiograph."

In a further article I stated "Teeth which do not show changes on a good radiograph and which are not painful are not the source of chronic toxic absorption. In other words, every tooth which is a source of chronic toxic absorption shows changes indicating this on the good radiograph."

Every radiologist is acquainted with the fact that dental surgeons do not all hold the same opinion with regard to dental sepsis. Some will act on the radiographic findings and extract teeth only shown to be septic, others will extract teeth with "clinical" signs and ignore obvious lesions shown on the radiograph, others will ignore clinical and radiographic evidence of sepsis and preserve teeth for "appearances" or for the attachment of a denture, yet others will extract teeth which show no definite clinical or radiographic evidence of sepsis. A note of caution regarding the treatment of obscure dental sepsis which I have given in a previous article reads as follows :—

"The reason for the doctor's recommendation for the wholesale extraction of a patient's teeth is based on his experience that such treatment results in the alleviation of certain symptoms. Equal success attends the extraction of only those teeth shown by the radiograph to be septic and probably leaves the patient with most of his or her own teeth and consequently not so liable to the digestive disturbances experienced by many edentulous patients."

Commenting on radiologists' reports Mr. Pitts says "While useful no doubt to the medical practitioner, tell the dentist singularly little." May I make the obvious suggestion that perhaps the latter does not always understand the reports? Their treatment of the lesion sometimes suggests this. For some reason Mr. Pitts thinks that radiologists do not hear the post-extractive findings in patients they have radiographed. He would be very surprised to know how much the radiologist is told, but may I here suggest that the information supplied is not always technically accurate. In my article in the *British Medical Journal* already quoted will be seen a radiogram (No. 9) which show a bulbous hypercementosis of the roots of a molar tooth with definite evidence of septic erosion of the mandible around. This tooth I reported to be septic. The dental surgeon who, in attempting to extract the tooth broke off the crown and left in the septic roots, told the patient that I had made a mistake and that "the tooth was sound otherwise it would have come out easily." My reputation was not re-established with the patient and no further treatment was given, in spite of a toxic arthritis, until the patient had been persuaded with much difficulty to see another dentist, when the septic roots were removed.

The leading article in THE LANCET of July 12th states :—

"It has become a common practice among doctors to send patients to have the teeth radiographed. If the radiograms and the reports which accompany them seem to suggest the existence of infection in the teeth, then the patient is referred to a dentist for the appropriate treatment. This order of procedure has brought with it some unhappy results."

In my experience the "unhappy results" are seen where the dental surgeon has previously taken his own radiographs and has excluded a second opinion which would have supported him in carrying out essential extractions. Radiologists frequently see patients upon whose teeth much time and money have been spent in gold-filling and crowning, and find that many of these teeth show definite evidence of apical sepsis. One can readily imagine that neither the patient nor the dentist is pleased with such a report and that the dentist, as your leader states, "generally prefers to make his own interpretation of them." It has been my experience that an attempt to parry the "unhappy result" is made by adversely criticising the report, telling the patient the radiographs are taken at the wrong angle, taking more radiographs and then ignoring the radiologist's report. Mr. Pitts says "the usual reports obtained from radiologists . . . follow a stereotyped line. They often contain inaccuracies and reveal clearly that the writers of them are ill-acquainted with the elements of the anatomy and pathology of the teeth and jaws." I see no reason why medical men should all be so ignorant of this branch of medicine.

Mr. Pitts's recital of recriminations is pathetic and most readers will agree with his statement that "recriminations of this sort are not very helpful," particularly when they learn that these are among the fallacies which will be found illustrated and described (perhaps in the first instance) in the article to which I have referred. When referring to these fallacies, I stated that—

"the errors in dental radiographic diagnosis may be due to (1) faulty photographic and radiographic technique, (2) misrepresentation of the radiograph due to (*a*) lack of experience in interpreting radiographic shadows, (*b*) lack of knowledge of general anatomy and pathology. As

regards (*b*) there is no question that for the best interpretation of radiographs the observer must have a good knowledge of the normal and pathological anatomy of the part. Most books dealing with the radiography of the teeth instance the interpretation of the mental and palatine foramina and loculi of the maxillary antrum as areas of peri-apical absorption, so that these mistakes are hardly likely to be repeated except by the beginner; even if they are the worst that can happen is the sacrifice of one or perhaps two sound teeth. The result of the wide knowledge of the faulty interpretation of these foramina has no doubt been responsible for the much more grave error which is brought to one's notice from time to time—that is, the interpretation of a definite peri-apical absorption as a normal foramen or sinus. It would seem that the larger the cyst the greater possibility is there of it being interpreted as a shadow of the antrum. This is of great importance because the systemic disease from which the patient is suffering continues or increases in severity as the suspected cause has been overlooked and allowed to remain—there being no local signs apparent to the patient or the clinical observer."

In Mr. Henry's article in THE LANCET of July 5th he states that the antrum "extends sometimes as far forward as the lateral incisor, and is often mistaken for an area of pathological destruction, especially when septa dividing it into loculi are present." Yet Mr. Pitts says, referring to a cyst involving the upper lateral incisor which had been mistaken for the antrum, "Though a very elementary knowledge of the anatomy of the jaws should have made it clear that the antrum does not extend to the incisor region." Here we have the opinion of two men "who have knowledge of the structure of the teeth and jaws" not quite agreeing with one another. Members of the medical profession recognise the usefulness of the independent opinion and the right of the patient to obtain it, and will not lightly accept any treatment from members of their own or allied professions which is opposed to it.

I am, Sir, yours faithfully,

JAMES F. BRAILSFORD, M.D.

Birmingham, August 2nd, 1930.

THE PROPER STRAPPING OF THE CHEST.

To the Editor of THE LANCET.

SIR,—Referring to Dr. Rudolf's remarks in your issue of July 26th (p. 214), I fully recognise the advisability of having the expiration as full as possible while the strapping is being applied, but I generally find the shallowness of the breathing caused by the acute pain in inspiration, combined with the pressure of the straps when applied in the manner directed, quite sufficient for the purpose. Certainly the straps should run horizontally though, in the female, when the breast is large, this is difficult. Thanking Dr. Rudolf for his comments,

I am, Sir, yours faithfully,

CHARLES W. CHAPMAN.

London, W., August 2nd, 1930.

PARLIAMENTARY INTELLIGENCE

NOTES ON CURRENT TOPICS.

PROROGATION OF PARLIAMENT.

PARLIAMENT was prorogued on Friday, August 1st, until Tuesday, Oct. 28th next. Among the Acts which received the Royal Assent were the Appropriation Act; the Finance Act; the Workmen's Compensation (Silicosis and Asbestosis) Act; the Illegitimate Children (Scotland) Act; the Education (Scotland) Act; the Adoption of Children (Scotland) Act; the Housing Act; the Housing (Scotland) Act, and the Road Traffic Act.

PHYSIQUE AND HEALTH OF THE ARMY.

On Wednesday, July 30th, the House of Commons considered the Civil Estimates and the Estimates for Revenue Departments on Report.

On a vote of £879,000 for the Expenses of the War Office,

Lieut.-Colonel WINDSOR-CLIVE moved to reduce the vote by £100. He said that when the Secretary of State for War introduced the Army estimates earlier in the year he revealed the disquieting information that the Army was 10,000 men under establishment owing to the serious falling off in recruits. Before the House separated for the summer recess it was right that they should know whether there had been any improvement in the situation, and what steps were being taken to remedy the situation.

Lieut.-Colonel HENEAGE seconded the motion for the reduction of the vote.

Mr. T. SHAW (Secretary of State for War) said that the War Office was not faced with any problem so far as the number of men offering themselves was concerned. Overwhelming numbers offered themselves for recruitment, but the problem was to get men who were physically fit. The appalling fact was that something like 61 per cent. of those who offered themselves had a reduced standard of height, chest measurement, and dental requirement. That fact ought to induce every Member of the House to do his best to tackle this problem of national physique, because if the race deteriorated no army in the world could save us from going down.

Earl WINTERTON asked if our Army standard was not one of the highest in the world.

Mr. SHAW said that might be so, but he was not at the moment concerned with other countries. During the nine months of the present year 19,213 recruits were taken in. The last month showed an increase over the previous figures, but compared with the numbers who had offered themselves this number was small. Probably the war and the limitation in the number of births during that period might be responsible to some extent for the present situation. He thought, however, that it was right to assume that there were millions of men in the country who did not believe in the Army; they would never join it voluntarily, and would only take up arms in a grave national emergency. He would speak with the utmost plainness. The present Government would not be responsible for attempting either to reduce the unemployment benefit or to make it more difficult to get it, because recruits were not coming into the Army. He thought that the question of unemployment pay had relatively little to do with whether a man offered himself for the Army or not. He did not doubt that the peace propaganda had a tremendous effect in that direction. That was inevitable, and again the Government could not be asked, for the sake of recruiting, to deviate one inch from their peace policy, or from the principles which they had always declared in regard to peace. He saw no need for panic in regard to the recruiting question but he agreed that the problem had to be tackled. The medical side of the service was understaffed. Judging from the information he had received from reports and data kindly given to him by some of the distinguished men in the medical profession it was quite evident that that was the case, and the reason he was told was that the terms were not good enough.

Sir L. WORTHINGTON-EVANS said that he must warn Mr. Shaw that he must not take consolation from the idea that he was going to get quickly a better type of recruit than was coming forward at the present moment. When he had dealt with the

public health side, and removed some of the underlying causes of ill-health among the population, there might be an improvement, but that would not affect recruiting next year or the year after. What they had to do was to maintain each year, not waiting for a longer period, the numbers of recruits going into the Army.

THE STANDARD OF PHYSICAL FITNESS.

Dr. VERNON DAVIES said that the fact that, although the height standard for the Army was now only 5 feet 2 inches, 61 per cent. of the candidates failed to reach the physical standard, showed that there were in the country to-day a very large number of young men who could not be described as physically fit. He (Dr. Davies) would not suggest that any one should be taken into the Army who was not organically sound, but he wondered whether the test could not be made a little lighter in respect to height, chest measurement, or dental requirements. Many of these men had perhaps been brought up in circumstances of great poverty, under slum conditions, and had not had any chance to live a healthy life in the open air with plenty of good food. If they had that chance they might develop physically and become really good strong healthy men, a credit to themselves and the country. The point about which he (Dr. Davies) was principally concerned was the shortage of medical officers. The Secretary of State for War had informed him that at present the shortage amounted to 140. It was no use having an Army, however small, unless it was healthy, and the only way to secure that was by having a sufficient and efficient medical staff. Mr. Shaw had indicated the vital point—namely, money. The medical man was worthy of his hire. More and more medical men every year were being attracted into the public medical services which offered very great inducements to the best type of man. A hospital medical officer got £600 and a senior medical officer from £750 to £1000. A medical officer to a port sanitary authority was offered £800, a district officer for tuberculosis £750 a year, and the medical superintendent of an institution got from £750 to £1000. The best men were taking up these appointments and the Army was suffering accordingly. If the Army offered sufficiently good terms it would get the medical officers it required. There was another method. The Government employed a large number of medical men in the various public departments. Would it not be possible to arrange that any medical man who had been in one of the services should have a preferential claim to any appointment in the Government Medical Service or under a municipality? The Secretary for War would not have to ask the Chancellor of the Exchequer for very much more money. The position was serious, and it was an urgent necessity that the Secretary of State should see that the medical services of the Army were recruited up to their proper strength.

The motion to reduce the vote was negatived without a division.

HOUSE OF COMMONS.

WEDNESDAY, JULY 30TH.

Tuberculosis in the Navy.

Dr. VERNON DAVIES asked the First Lord of the Admiralty if there had been any increase in recent months in the percentage of cases of tuberculosis which had been granted pensions on account of attributability to the conditions of service.—Mr. ALEXANDER replied: During the past six months 70 per cent. of those invalided for tuberculosis have been granted attributable pensions. This compares with 68 per cent. in the case of those invalided during the year 1929.

Sick Berth Arrangements at Plymouth Naval Hospital.

Mr. HORE-BELISHA asked the First Lord of the Admiralty whether his attention had been drawn to the system of summer leave during the summer leave period (August 1st to 22nd) for the sick-berth staff of the Royal Naval Hospital, Plymouth; and whether, seeing that, owing to shortage of labour, some of the staff would have to be continuously on duty for 13½ hours per day with a possibility of a further four hours' night watch in the event of an accident or serious case being received in the hospital, he would consider whether better arrangements could be made.—Mr. AMMON (Parliamentary Secretary to the Admiralty) replied: Owing to the exigencies of fleet requirements the sick-berth staff of the Royal Naval Hospital, Plymouth, is temporarily short of the authorised numbers. It is also inevitable that during long leave extra work falls on ratings who are not on leave, but no member of the staff is continuously on duty for as long as 13½ hours.

Medical Services in India.

Lieut.-Colonel FREMANTLE asked the Secretary of State for India when he expected to have the views of the Government of India as to the proposed formation of an Indian medical council, and as to the admission to the Indian Medical Service of candidates not holding qualifications recognised by the General Medical Council; and whether, in view of the hardship caused to students now becoming qualified in India, who were thereby losing the advantages of British registration, and the importance of these matters to the welfare of Indians and Europeans in India, and in order to secure its earliest consideration by parties and persons interested, he would publish the reply without delay.—Mr. WEDGWOOD BENN replied: I have not heard when the Government of India expect to be in a position to send me their views, but I have no doubt that they will deal with the matter as expeditiously as possible. I cannot undertake to publish the reply of the Government of India before I have seen it, but I will bear the hon. Member's suggestion in mind.

Laboratory Diagnostic Service for Insured Persons.

Dr. VERNON DAVIES asked the Minister of Health if he was aware that Section 4 of the National Health Insurance Act, 1928, which precluded insurance committees from making grants unless the Minister was satisfied that they were of an eleemosynary character, would abolish next December the laboratory diagnostic service of the Lancashire insurance committee which since 1926 had provided out of local funds a free laboratory diagnostic service for 800,000 insured persons in Lancashire at a cost of less than one farthing per head; and, in view of the importance of such a service to the public health, would he delete the word eleemosynary from Section 4 above mentioned.

Mr. RAMSBOTHAM asked the Minister of Health whether he was aware that, under Section 4 of the National Health Insurance Act, 1928, the Lancashire insurance committee was now precluded from making grants necessary for the continuance of the laboratory diagnostic services in Lancashire; and whether, seeing that the entire community was in favour of such grants being made in view of the valuable work carried out by these services, he proposed to introduce legislation at an early date to alter the law so as to leave the making of grants within the unfettered judgment of the Minister of Health.—Mr. GREENWOOD replied: I am aware that the National Health Insurance Act passed in the late Parliament will produce the effect to which the hon. Members refer. Alternative means of securing services of this character have been suggested to representatives of the committee, but I cannot undertake to propose an amendment of the law on the point.

Working Days Lost Through Sickness.

Mr. DAGGAR asked the Minister of Health the number of working days lost through sickness for each of the years 1921 to 1929 inclusive.—Mr. GREENWOOD replied: I can only give particulars with regard to persons insured under the National Health Insurance Acts. The following Table, which refers to England and Wales, shows the approximate number of weeks for which sickness and disablement benefits were paid under the National Health Insurance Acts during each of the years from 1921 to 1929:—

Year.	Million weeks.	Year.	Million weeks.
1921	19	1926	28¼
1922	19½	1927	30½
1923	20½	1928	26½*
1924	23¼	1929	29½
1925	25		

* As from Jan. 2nd, 1928, the age at which sickness and disablement benefit ceased to be payable was reduced from 70 to 65.

THURSDAY, JULY 31ST.

Accidents in Demolition Work.

Mr. DAY asked the Home Secretary whether his attention had been called to several recent accidents to workmen caused by the demolition of old buildings; and whether he would consider strengthening the existing law or the

protection of workmen engaged on such work.—Mr. CLYNES replied: I do not know to what accidents the hon. Member specially refers, but a number of accidents to persons employed in the work of demolition have come to the notice of the Factory Department during recent months. The present Factory Act provides only for the protection of those employed in construction or structural repair of buildings, but it is proposed in the Factories Bill to include demolition.

Mental Treatment.

Mr. ROBERT RICHARDSON asked the Minister of Health whether, in accordance with the suggestion of his Parliamentary Secretary, made in response to the wishes of the Standing Committee on the Mental Treatment Bill, certain places would be set apart to give separate accommodation to voluntary boarders; how many of the hospitals which had hitherto been poor-law infirmaries will be utilised for that purpose, so that those who had voluntarily submitted themselves to treatment should not be housed in the same institutions as the certified; and how many hospitals (particularising general or mental) had started out-patient clinics for mental cases.—Mr. GREENWOOD replied: I would remind my hon. friend that the Mental Treatment Bill only received the Royal Assent on the 10th of this month, and does not come into operation until Jan. 1st, 1931. The Board of Control have already conferred with representatives of the local authorities in regard to some of the more important provisions of the Act; but until local authorities have had a reasonable opportunity of considering and determining the steps to be taken in their areas when the Act comes into operation, it is not possible to give the information asked for in this question.

Mr. RICHARDSON asked the Minister of Health what progress had been made in the drafting of the Bill to do away with the differentiation hitherto existing in the procedure of certification in the case of the so-called pauper as compared with the private patient.—Mr. GREENWOOD replied: In the course of the consideration of the recommendations of the Royal Commission notes were prepared on the clauses that would be required to effect an assimilation of the procedure for the certification of rate-aided and private mental patients. But no steps have been taken towards the drafting of a Bill because it is not practicable at present to undertake further lunacy legislation.

Mr. RICHARDSON: Was not a promise made to do this when the Bill was in Committee?

Mr. GREENWOOD: No; I said that we were obtaining all the evidence, but I held out no hope of further legislation.

Chemists and Health Insurance Prescriptions.

Mr. GOULD asked the Minister of Health whether, with regard to the report received from the Somerset health insurance committee, in which it was stated that certain chemists had been dispensing in a very lax way under the National Health Insurance Act, and that in one case a deficiency of 69 per cent. of the drugs as prescribed by the medical practitioner was dispensed to the patient, he would say what action he proposed to take in this matter.—Mr. GREENWOOD replied: The report which I understand that my hon. friend has in mind was received yesterday, and any case of failure to comply with the terms of service applicable to insurance chemists will be dealt with in due course in accordance with the Medical Benefit Regulations.

Mr. GOULD: As this report has been given considerable publicity in the Press, and has left a very bad impression in the minds of the patients in regard to the quality of the dispensing, will the right hon. gentleman consider the report and take action in regard to those who maladminister the Act?

Mr. GREENWOOD: There is no delay on my part. There is a definite procedure to be followed under the Regulations in regard to my intervention, but I am afraid that point has not been reached.

Home for Mental Defectives.

Mr. THOMAS WILLIAMS asked the Minister of Health whether he had yet sanctioned the purchase of Brandonburton Hall by the East Riding (Yorks) County Council as a home for mental defectives; and, if not, before so doing, if he would take into consideration the unsatisfactory situation of this hall and the fact that the site was only 11 feet above sea-level.—Mr. GREENWOOD replied: I have already given provisional approval to the proposal made jointly by the East Riding Council County and York City Council to purchase Brandonburton Hall and 98 acres of land for mental deficiency purposes. The estate was inspected on behalf of the Board of Control who are satisfied that it is suitable for the purpose in view. Such inquiry as I have been able to make in the time available does not support the statements in the latter part of the question.

Patent Medicine Duties.

Mr. LEIF JONES asked the Chancellor of the Exchequer the annual sum received from patent medicine duties; if he was aware that the Board of Customs and Excise had granted exemption from such duty to proprietors of patent medicines in cases where the formula was disclosed and no proprietary right to the preparation was claimed, notwithstanding the fact that such proprietors had in the past advertised and were still advertising that their preparations prevented or cured illness; and what was the loss of revenue due to this exemption.—Mr. SNOWDEN replied: The net amount of medicine stamp duty received in the year ended March 31st, 1930, was approximately £1,834,200. Figures for the previous ten financial years may be found in Table III., page 11, of the twentieth report of the Commissioners of Customs and Excise. (Command paper 3435.) As regards the second part of the question, there is a statutory exemption from the duty in favour of "known, admitted and approved" remedies, when sold by duly qualified doctors, chemists or druggists, in which no proprietary right is claimed, and claims for such exemption are admitted provided that a definite and complete statement of the actual ingredients—i.e., the full formula with proportions—and a statement that no proprietary rights are claimed in the preparation of the medicine are printed in a legible and conspicuous manner on all labels, cartons, &c. Following the decision of the courts in the case of Farmer *v.* Glyn Jones in 1903 exemption has not been refused on the ground that known, admitted, and approved remedies have been recommended for the prevention or cure of illness. The cost of this exemption cannot be stated.

FRIDAY, AUGUST 1ST.

Medical Examination of Canadian Emigrants.

The Earl of DALKEITH asked the Secretary of State for Dominion Affairs if his attention had been called to cases in which would-be Scottish emigrants to Canada had sold up all they possessed, been passed as fit by medical men in this country, had been rejected at the port of arrival, and returned to Scotland in a state of destitution; and whether he would consider, in conjunction with the Canadian authorities, some better system of supervision and control, in which there should be a medical authority on this side who had the definite responsibility of saying whether a person was or was not fit to emigrate.—Mr. THOMAS replied: In order to prevent as far as possible the occurrence of cases of the description referred to by the noble lord all migrants from the United Kingdom to Canada are medically examined in this country prior to their departure by a medical officer appointed by the Canadian Government. Under the Canadian immigration law a final medical inspection takes place on the arrival of a migrant in Canada, and in the very great majority of cases the preliminary medical examination is confirmed. In a few exceptional cases, however, generally through changes which have taken place since the preliminary medical examination, migrants are refused admission to Canada as a result of this final medical examination: but I am satisfied that the Canadian authorities take all possible steps to prevent the occurrence of cases of this description.

EAST SUFFOLK AND IPSWICH HOSPITAL.—Last year 4721 in-patients were treated to a conclusion: at £3 4*s.* 10*d.* each per week their individual total cost was £8 17*s.* 4*d.* Their average stay was 19·22 days. There were 18,222 new out-patients, who made 81,462 attendances. The income—£54,277—was a record; the contributory scheme produced just over £31,000, an increase of over £1500. The patients' breakfast hour has been altered from 6 A.M. to 8 A.M.

NOTTINGHAMSHIRE ISOLATION HOSPITALS.—The public health committee of the Nottinghamshire county council reports that the hospital accommodation for the treatment of infectious diseases, other than small-pox is sufficient for little more than one-third of the population of the county, and that not less than 200 additional beds are required. They therefore recommend the erection of one large central hospital of 200 beds. The proportion of the population for which there is no satisfactory small-pox accommodation approaches a quarter of a million, and it is recommended that not fewer than a further 40 beds should be provided, with faculty for extension. It is further suggested that all the arrangements for the treatment of infectious disease should be unified, and that the county should be constituted as one isolation hospital area, which involves the transfer to the county council of all existing local isolation hospitals. The recommendations were adopted and a scheme is to be prepared for carrying them out.

MATERNAL MORTALITY AND MORBIDITY.

INTERIM REPORT OF DEPARTMENTAL COMMITTEE OF THE MINISTRY OF HEALTH.[1]

THREE years ago Mr. Neville Chamberlain, then Minister of Health, appointed a Departmental Committee to advise upon the application to maternal mortality and morbidity of the medical and surgical knowledge at present available, and to inquire into the needs and direction of further research work. Sir George Newman was made chairman and Dr. Margaret Hogarth secretary, the other members being Prof. F. J. Browne, Dame Janet M. Campbell, Dr. Ethel Cassie, Dr. Leonard Colebrook, Prof. Archibald Donald, Dr. C. E. S. Flemming, Sir Walter Fletcher, Dr. Harold Kerr, Dr. W. H. F. Oxley, Prof. Miles H. Phillips, Dr. C. E. Tangye, and Dr. O. L. V. S. de Wesselow. Owing to illness Dr. Margaret Hogarth was unable to undertake the secretaryship, which devolved on Dr. Jane H. Turnbull. This committee has now submitted an interim report. After a brief introduction the chapters are concerned with a report of the maternal death investigation, abortion in relation to maternal mortality, puerperal sepsis, antenatal care, the use of anæsthetics and analgesics in obstetric practice, medical education in obstetrics, a report on a national maternity service, and conclusions and recommendations. Appendices include reports from the Royal College of Physicians, from the British College of Obstetricians and Gynæcologists, and from a subcommittee of the British Medical Association on anæsthetics in confinements; memoranda on the sterilisation of the hands and on the need for bacteriological services in the control of puerperal infections, by Dr. Leonard Colebrook and Dr. F. Griffith, and a memorandum on antenatal clinics; and a copy of the death inquiry form of the Maternal Mortality Committee.

One of the most important sections of the publication is the

Report on Maternal Death Investigation.

A form of inquiry was drawn up by the committee, and the medical officer of health of the appropriate local authority was invited to be responsible for the completion of the forms. It was suggested by the Ministry that a consultant or a specially qualified practitioner should be nominated to assist the medical officer of health in cases of unusual difficulty, and in some areas this suggestion has been adopted.

The preliminary scrutiny and classification of the forms on lines laid down by the committee were entrusted to two medical examiners appointed by the committee for this purpose—Mr. G. F. Gibberd, obstetrical and gynæcological registrar, Guy's Hospital, and Mr. Arnold Walker, assistant obstetric surgeon, the City of London Maternity Hospital. The committee express appreciation of the accuracy, industry, and good judgment with which they have carried out the onerous and difficult task of preparing the records, of which 3079 were received between November, 1928, and April 30th, 1930. It is estimated that about two-thirds of all the maternal deaths in England and Wales are now coming before the notice of the committee. In this interim report the first 2000 cases only are considered.

[1] H.M. Stationery Office. 1930. Pp. 151. 2s.

The analysis made of these cases has been purely clinical and administrative. They have been divided into two classes—a first group comprising deaths directly due to pregnancy and childbearing (including abortion and ectopic gestation) and numbering in all 1596, and a second group comprising deaths due to an independent disease, concurrent with pregnancy or childbirth, in which childbearing contributed to or accelerated death or was present merely as an incident. In this group there were 404.

DEATHS DIRECTLY DUE TO CHILDBEARING.

The 1596 deaths attributed directly to childbearing have been divided into the following subclasses, which have been based on clinical rather than pathological causes of death.

TABLE I.

		Per cent.
4. Sepsis	616	38·6
2. Eclampsia	218	13·6
3. Operative shock, &c.	145	9·0
4. Antepartum hæmorrhage	125	7·8
5. Postpartum hæmorrhage	92	5·7
6. Other toxæmias, including chorea and mania	99	6·2
7. Embolism	113	7·0
8. Abortion	168	10·5
9. Extra-uterine gestation	20	1·2
Total	1596	

These figures may be studied in connexion with the following table from the Registrar-General's Returns for 1928, though the groups do not and cannot exactly correspond. There is sufficiently close correspondence in the percentages to suggest that the deaths investigated by the committee are fairly representative of the whole number occurring in England and Wales.

TABLE II.—CAUSES OF DEATH AS RECORDED BY REGISTRAR-GENERAL IN 1928.

		Per cent.
Abortion	77	2·60*
Ectopic (extra-uterine) gestation	86	2·90
Other accidents of pregnancy	106	3·60
Puerperal hæmorrhage	331	11·30
Other accidents of childbirth	331	11·30
Puerperal sepsis	1184	40·50
Puerperal phlegmasia alba dolens not returned as septic	31	1·00
Puerperal embolism and sudden death	188	6·40
Puerperal albuminuria and convulsions	557	19·00
Childbirth not assignable to other headings	21	0·72
Puerperal diseases of the breast	8	0·27
Total	2920	

* Other than those due to sepsis and excluding criminal abortion.

In some instances, in view of all the information at its disposal, the committee has thought fit to assign the death to some cause other than the one entered on the death certificate.

Certain clinical points of interest have emerged from the reports.

Sepsis.—The 616 deaths from sepsis have been divided into three classes: (1) Sepsis following ordinary normal labour (294 cases); (2) sepsis following delivery by low forceps, labour being otherwise normal (47 cases); and (3) sepsis following complicated labour (275 cases). Classes (2) and (3) have been differentiated because the frequency with which delivery is effected in private practice by means of the forceps is such that the committee considered that it would be inaccurate to classify all such cases as complicated labour. In all the cases included in class (2) there seemed to be no particular reason for the operation beyond slight delay during the second stage of labour. In the majority of the deaths which followed normal labour there was no positive evidence of any mismanagement during delivery, but the records are not always explicit, and at some stage in many of these cases there is likely to have been some failure to exercise due care which was ultimately responsible for a fatal issue.

Amongst the 616 deaths from sepsis the nature of the antiseptic used was the subject of investigation. In 305

cases lysol alone was used, in 92 cases mercury preparations, and in 219 cases other antiseptics (or unstated). In few of the reports on fatal cases of sepsis have the scheduled questions under "disinfection" have been answered in detail. Serious lack of adequate antiseptic precautions—whether due to ineffective antiseptic solutions or to carelessness in utilising antiseptics—is held to account for the morbidity in many of the cases. The whole question of the adequate disinfection of the hands and instruments of the professional attendants as well as of the surroundings and person of the patient, is one which deserves, and indeed necessitates, far more attention than it apparently receives.

Certain other features of the deaths attributed to sepsis are of interest. For example, the day of onset of pyrexia was recorded in 544 cases, and in 66 per cent. of these it was observed within the first three days: this confirms the general impression that patients who escape a rise of temperature during the first three days are less likely to do badly. The duration of the illness was noted in 607 cases. It was under one week in 276, from one to two weeks in 182, and longer than two weeks in 149. Here again the findings confirm the impressions of most doctors. Another observation, however, will be a surprise to some practitioners. The duration of labour was over 24 hours in only 97 cases out of 307 in which a note was made on the point. It appears from these figures that prolonged labour is not in itself dangerous, and that patients and their friends should be educated to believe this.

Eclampsia.—Under this heading are included all cases of toxæmia in which convulsions or fits occurred. They numbered 218. In 105 cases the urine was tested with some degree of regularity. In 43 of these no albumin was found, but as the date of the last examination of urine was given in very few cases, the conclusion that albumin was in fact absent until the onset of symptoms cannot fairly be drawn. In 62 albumin was found. Of these, very few received treatment in accordance with the best modern practice and in 41 treatment was definitely deficient. In 113—i.e., over half the cases—the urine was either not tested at all or was tested only occasionally. In only 23 cases is there a record of blood pressure having been taken before the onset of fits.

The committee consider that eclampsia is almost entirely a preventable disease, provided (*a*) that urine and blood pressure tests are made regularly and with sufficient frequency throughout pregnancy, and (*b*) that adequate and prompt treatment is carried out should an abnormality arise. In this series 51·7 per cent. of the deaths from eclampsia are attributed primarily to non-detection of the albuminuria, and the committee hold that efficient antenatal examination would probably have enabled the fatal result to be avoided. Amongst the cases where albumin was detected, the committee were impressed by the comparatively frequent absence of competent treatment and particularly by the failure to secure admission to hospital. Only in 21 out of 218 cases was the treatment really satisfactory. The futility of attempting to treat a pregnant woman with albuminuria in her own home, where she has her household duties always before her, is emphasised. The committee consider that the provision of more hospital beds for antenatal observation and treatment of such patients would save much morbidity and many lives every year. Information as to methods of treatment adopted was not sufficient to enable any conclusions to be drawn. The committee express surprise, however, to find that accouchement forcé is still practised in the treatment of cases of eclampsia and of antepartum hæmorrhage.

Ante- and Post-partum Hæmorrhage.—125 cases died from antepartum and 92 from postpartum hæmorrhage. In the vast majority of cases there had been a warning hæmorrhage some days (often some weeks) before the fatal hæmorrhage, and had this been heeded, and the patient removed to suitable surroundings, the fatal result might well have been avoided in many cases. Usually the failure to take heed lay with the patient—in a few cases the doctor or midwife had considered the premonitory bleeding of no importance, and in some cases, although the potential seriousness had been recognised, institutional treatment was not available. In cases of antepartum hæmorrhage treated in the patient's own home, the comparative rarity with which injections of saline solution were given by intravenous or even subcutaneous methods or administered per rectum is held to be significant. In no case of postpartum hæmorrhage reviewed was a blood transfusion given, and in only a small proportion was subcutaneous, intravenous (10 cases), or rectal (20 cases) saline used. Thus in 62 cases no attempt whatever was made to replace body fluids except by the mouth.

Brief notes are given in respect of the deaths due to other toxæmias, embolism, abortion, extra-uterine gestation. The committee consider that many of the 112 deaths following Cæsarean section could have been avoided had proper antenatal care and foresight during labour been available, or had the operation been performed before the birth canal had become infected.

DEATHS NOT PRIMARILY DUE TO PREGNANCY.

Out of the total of 2000 deaths, 404 were returned as attributable to concurrent disease associated with childbirth as follows:—

TABLE III.—INCIDENTAL DEATHS.

Lung diseases (not tuberculosis)	153
Heart disease	98
Chronic renal disease	40
Pulmonary tuberculosis	26
Cerebral hæmorrhage	18
Scarlet fever	4
Unclassified	65
Total	404

The committee were impressed by the general lack of facilities for adequate treatment and management during pregnancy and labour of a woman who is seriously ill with intercurrent disease. In heart disease, in pulmonary tuberculosis, and in chronic renal disease there is an urgent need for accommodation in institutions which would require a medical staff competent in obstetrics as well as general medicine.

The "Primary Avoidable Factor."

The committee have carefully analysed all cases of deaths directly due to childbearing, with the exception of those due to abortion and ectopic gestation, with a view to ascertaining whether death was inevitable, or might have been avoided in more fortunate circumstances. In this connexion the difficulty of correct interpretation by the committee of the information given in the reports has had to be faced. They have, however, felt it to be their duty to note, in every case in which the available information, after being carefully considered, appeared to warrant it, a "primary avoidable factor" in the train of events which led up to the fatal result.

In considering these cases the committee have not had in mind an ideal procedure totally impracticable at the present time in domestic midwifery. They have adopted for convenience a common-sense standard which, though arbitrary, they consider should be attainable with the present personnel and under existing general social conditions, at any rate in areas within reach of consultant and hospital services. It is on this agreed standard (set out in the report) that the records have been analysed.

In summarising the conclusions with regard to the primary avoidable factor, the committee have been forced to use a numerical method because it seems to be the only one that lends itself to the task, and not because they think there is anything approaching mathematical accuracy in their conclusions. They are anxious to emphasise that wherever a figure is quoted in the following summary, it is meant to be a convenient index of a matter of opinion, rather than a precise observation on a mathematical certainty. The committee have made a broad general analysis of the deaths due to pregnancy or childbearing with a view to the discovery of a "primary avoidable factor," with the following result:—

Group 1. Cases showing a primary avoidable factor	626
,, 2. Cases in which no departure from established practice having a causal relationship to the death has been found	660
,, 3. Cases not strictly relevant to this part of the investigation—viz., abortion and extra-uterine gestation	188
,, 4. Cases in which the information was insufficient	122
Total	1596

In other words, the committee find as a result of inquiry into these deaths that in 39 per cent. of the total number occurring as the direct result of child-

birth the data obtainable indicate a primary avoidable cause. When the "irrelevant" cases and the cases with insufficient information are excluded the net percentage of preventable deaths is as high as 48, that is, nearly half the cases showed a primary avoidable factor. These avoidable factors have been subdivided under four headings: (*a*) omission or inadequacy of antenatal examination, (*b*) error of judgment in the management of the case, (*c*) lack of reasonable facilities, and (*d*) negligence of the patient or her friends.

OMISSION OR INADEQUACY OF ANTENATAL EXAMINATION.

The committee have limited this group to cases showing complete absence of proper antenatal care. In most of the instances the responsibility rested on the patient, but it is also evident that the quality of the supervision given leaves a good deal to be desired. Faulty antenatal care was considered to be the primary avoidable factor in 226 of the 626 cases in this group (36 per cent.). In 157 of these cases the doctor or midwife responsible for the care of the patient had failed to make any antenatal examination at all or the patient had given them no opportunity to do so. And in 69 others antenatal examination failed to detect a gross abnormality which must have been present. These cases are set out in the following tables (A and B):—

TABLE A.

Absence of antenatal examination.

The doctor was responsible in	28
,, midwife ,, ,,	20
,, patient ,, ,,	109
	157

TABLE B.

Failure of antenatal examination to detect an abnormality.

Examination by doctor	37
,, ,, midwife	13
,, ,, clinic or hospital	19
	69

ERROR OF JUDGMENT.

Such errors of judgment as bear little or no reference to the event of death have not been ascribed as a primary avoidable factor.

Errors Attributed to Midwives.—The greatest number of errors which had a direct bearing on the fatal termination of the case were naturally attributed to doctors, as on them rests the ultimate responsibility for all conditions showing a departure from normal. For this reason it is recognised that deductions based upon a comparison of mortality-rates in the practice of doctors and midwives respectively may be entirely misleading. Not only is the midwife obliged in all abnormal cases to send for medical aid, but she is also bound by her rules to refuse to undertake alone a case in which, from the history or from some other indication, abnormality appears probable. Thus the midwife has not the same opportunity of exercising an independent judgment, and can always call for assistance when in doubt. The 57 cases where the fatal termination is considered to be due primarily to error of judgment on the part of the midwife were almost entirely cases of contravention of her rules. The small remainder were nearly all examples of gross ignorance, and the midwife was usually found to be much too old for her work.

Errors Attributed to Doctors.—These occurred chiefly in domiciliary practice, though there were a few clear instances of mismanagement of cases admitted to hospital. In this connexion regard should be paid to the handicaps under which the general practitioner works in obstetric cases; he has for long acquiesced more or less unwillingly in this unsatisfactory position. Surprisingly good results are often obtained in untoward circumstances, but not infrequently the doctor attempts the impossible, and the case ends in a tragedy. Again, unless labour is relatively rapid, he may find himself pressed by the patient and her relatives to expedite delivery, other urgent work may be awaiting him, and there is often a strong temptation to hasten the case, even though he may be conscious that in so doing a greater or less degree of departure from the path of sound midwifery is entailed.

In nearly one-third of the cases classed as errors of judgment on the part of the doctor, the mistake was premature application of the forceps. In many of these delivery was not effected, and the patient was ultimately sent to hospital where incomplete dilatation of the cervix or disproportion was usually found to be present. Other examples of common error are failure to treat a toxæmia of pregnancy, and the neglect of early warning hæmorrhage in placenta prævia.

Error of judgment on the part of the doctor or midwife or hospital was assigned as the primary avoidable factor leading up to the death of the patient in 224 cases (35·7 per cent. of the group of 626 cases), and these cases are analysed in the following table:—

TABLE C.

Errors of judgment.	Doctor	Hospital.	Midwife.	Total
Treatment of severe toxæmias of pregnancy faulty or absent ..	27	9	7	43
Neglect of warning hæmorrhages	17	2	5	24
Improper use of forceps.. ..	41	4	—	45
Faulty treatment of third stage of labour	16	2	9	27
Non-recognition of obstructed labour	8	2	10	20
Gross errors in the prevention or recognition of sepsis	7	2	14	23
Miscellaneous	30	—	12	42
Total	146	21	57	224

LACK OF REASONABLE FACILITIES.

In this class are included cases in which the absence of skilled assistance was the primary cause in the death, cases conducted in abnormal surroundings, such as delivery in a cowshed, instances of women living in remote and isolated situations, and one or two examples of extreme overcrowding. Poverty and uncleanliness, although unfortunate accessory factors, have not, so far as can be ascertained from the reports, borne any direct relation to these deaths.

Lack of reasonable facilities was considered to be the primary avoidable factor in 64 cases. Only a few of the deaths could be attributed to difficulty in obtaining medical assistance of some sort. In 26 cases it was thought that the most important factor leading to the fatal issue was absence of a second doctor to give an anæsthetic. In 13 cases it seemed probable that if the doctor had had a trained assistant, instead of having to rely in a difficulty upon the inadequate help of a totally incompetent relative or friend, the result would have been different. In 25 deaths it was considered that the most important cause leading up to the death lay in the bad surroundings under which the patient was confined.

Absence of hospital beds and of consultant services had undoubtedly been responsible for death in many cases.

NEGLIGENCE OF THE PATIENT AND HER FRIENDS.

In 112 deaths the Committee considered that the most important cause leading up to the death was absence of sensible coöperation on the part of the patient—in the majority of cases amounting to deliberate refusal to carry out advice or to take any reasonable steps to obtain help. In addition to these, there were 109 patients who failed, presumably through ignorance, to submit themselves to antenatal examination, and these have been included under the appropriate heading.

Cases where No Avoidable Cause has been Detected.

There remain 660 deaths, in some of which there was nothing definite in the report to show that the woman had not received attention in accord with the reasonable standard laid down, while in others the failure to attain the standard had no apparent causal relation to the fatal termination. It should be noted that in a large number of cases failure of the Committee to discover an avoidable cause is probably due to deficient information rather than to the absence of such a cause.

Conclusions.

The committee draw certain conclusions from this section of the report. While emphasising the extreme importance of antenatal examinations, they have found evidence of a certain amount of inefficient work which has passed under the guise of "antenatal care." They consider that adequate and satisfactory antenatal care requires as much experience, as much skill and as much diligence as operative midwifery itself, and that every effort should be made to secure effective medical supervision by competent medical practitioners in close touch with actual obstetric work.

Not only have the Committee found evidence of neglect in antenatal diagnosis, but also to a great extent in antenatal treatment. In many instances failure to treat a patient has largely been due to lack of facilities, and the Committee think that great benefit would follow an increase in the number of beds available for such cases in institutions. In relation to serious complications and accidents of labour, the Committee have ample proof of the need for a higher standard of knowledge and skill on the part of the general practitioner, as well as for the provision of consultant services and of an increased number of readily available hospital beds.

While better facilities for blood transfusion would be highly advantageous, the majority of cases of hæmorrhage and obstetric shock can be saved from death by the immediate replacement of fluid by intravenous or subcutaneous saline solution or other suitable fluid. Saline solution per rectum may be effective in mild cases, but the fluid is not absorbed by the bowel in cases of severe collapse. The Committee, therefore, regard the extended provision of these services as an essential part of any measures taken for the improvement of midwifery work. They look for substantial improvement in the number of deaths from sepsis following abnormal labour. It seems to them a reasonable hope that the amount of difficult midwifery performed under unsuitable conditions will steadily decrease, and as a result the number of deaths from sepsis in this group will decrease also.

On the other hand, the number of deaths from sepsis following "normal labour" demands intensive investigation. Failure in efficient antiseptic technique probably accounts for a considerable number of these cases.

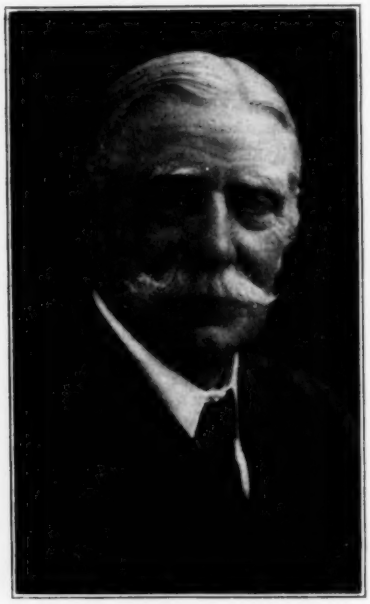
(To be concluded.)

OBITUARY

SIR FRANCIS CHAMPNEYS, Bt., M.D. Oxf., F.R.C.P. Lond.

Sir Francis Champneys, the well-known obstetric physician, died on July 30th at his residence, Littlewood, Nutley, at the age of 82.

Francis Henry Champneys was the second son of the Very Reverend William Champneys, Dean of Lichfield, and was educated at Winchester where he was a scholar, at Brasenose College, Oxford, and at St. Bartholomew's Hospital. At Oxford he obtained a first class in science in 1870, and two years later he was elected Radcliffe Travelling Fellow. Champneys graduated in medicine in 1875, and in the following year obtained the M.R.C.P. Lond. While he held the travelling scholarship he did post-graduate work in Vienna, Leipzig, and Dresden, and in the last city held the post of clinical assistant to the Royal Saxon Lying-in Hospital, thus commencing his successful career as an obstetrician. On returning to London he became assistant to Dr. Matthews Duncan, who was then obstetric physician at St. Bartholomew's Hospital, and was himself made an obstetric tutor in the medical college, an appointment which had some influence on his future career. For although in 1882, the year he was elected F.R.C.P., Champneys was made obstetric physician at St. George's Hospital, in succession to that great and original teacher, Robert Barnes, he was invited to return to St. Bartholomew's Hospital on the death of Matthews Duncan, and accepted the invitation. Meanwhile he had been appointed assistant physician to the General Lying-in Hospital, and found there material which contributed to his wide knowledge of practical obstetrics. As a teacher Champneys was fluent and informing in his lectures and clear in his practical demonstrations. While he was at St. George's he left the operative side of his department to some extent in the hands of the surgical staff, while at St. Bartholomew's the terms of his appointment confined him to midwifery. His writings are consequently for the most part concerned with obstetric problems, but when invited by the Harveian Society of London to deliver the Harveian lectures in 1890 he chose for his subject Painful Menstruation. The lectures were afterwards published in THE LANCET, and are noteworthy for the lecturer's discrimination between distress of different kinds, ranging from vague discomfort to acute localised pain. The general conclusions concerning dysmenorrhœa in his first lecture show a balanced outlook on the psychology of different types of patient which gives a clue to his success in relieving mental as well as physical suffering.



SIR FRANCIS CHAMPNEYS.

[Photograph by Elliott & Fry.

Under the Midwifery Act of 1902 which, after considerable opposition both within and without the medical profession, obtained a place on the Statute book, the Central Midwives Board came into existence, and Champneys was made its first chairman. As is well known, the purpose of the Act was to regulate the practice of women midwives, to standardise the education of those who obtained a place on the official roll of midwives, and to exercise disciplinary powers such as would prevent the incompetent woman, or woman who failed to observe the regulations of the Act, from maintaining their place on the roll. Champneys held strong views on the importance of the duties of the Board. He

was always sympathetic to the midwives, however, and the fairness and tact with which he managed the proceedings, sometimes difficult and delicate, were acknowledged on all sides, and led to his re-election year by year to the chairman's seat. It is difficult to imagine the Board with any other chairman, for until the illness occurred which ended in his death he was only absent from two Board meetings during the 28 years of his chairmanship. Nor was this his only activity in the administration of professional affairs, for in 1911 he was nominated by the Crown as a member of the General Medical Council; this five years' appointment was twice confirmed, so that Champneys retained his seat on the Council for 15 years. In 1910 he was created a baronet.

Champneys took a keen and active interest in medical societies. He held many official posts in the Obstetrical Society of London, culminating in that of president in the session 1895–96, and communicated much of his work to this society. When it was merged into the Royal Society of Medicine he followed its fortunes with no less interest, and was honoured by being elected president of the last-named society in 1912 and 1913. In 1913 also he acted as president of the Section of Obstetrics and Gynæcology at the International Medical Congress. Naturally his services were sought by examining bodies, and at different times he was an examiner for the universities of Oxford, Cambridge, and London, and for the Conjoint Board. In recent years Sir Francis took a warm interest in the organisation of the British College of Obstetricians and Gynæcologists. He was attracted by the idea when it was first conveyed to him, and gave great help in overcoming the difficulties with which the undertaking was faced. He became a member of the first Council of the College and was elected its first and up to now the only vice-patron.

Apart from his professional activities Champneys was well known in the musical world. Both at school and at college he had been devoted to music, and shortly after his establishment in London he became the centre of a highly musical coterie whose object was the study of church music. He was himself an executant upon several instruments, and the composer of several anthems.

Sir Francis Champneys will be greatly missed in many different circles, and his stimulating personality and wise judgment will long be remembered.

Dr. J. S. Fairbairn writes: "After an association with Sir Francis Champneys of over 25 years, the latter half of them including service together on the Central Midwives Board, I look back on him as an outstanding example of the cultured professional man with a stern sense of public service. He lived up to his high principles and strong convictions, tinged almost with austerity, but without the aggressiveness and love of controversy often associated with them. My acquaintance with him began in his mellower years, when I found an openness of mind and willingness to hear the views of others, and in particular the aspirations of a much younger generation. A concrete instance may best illustrate this aspect of his character. The time was the proposed amalgamation of the medical societies of London into the Royal Society of Medicine, and the occasion an informal discussion thereon following a meeting at his house for another purpose. The union of the Obstetrical with the British Gynæcological Society was mentioned as implicit in this amalgamation, and Champneys at once expressed his opposition on the ground that it involved great principles underlying the break-away in the past of the newer from the older society. One of the younger school present pointed out that he and his contemporaries knew nothing of the history of the split and were not prepared to take up the controversies of their predecessors or allow past history to interfere with a movement that seemed otherwise beneficial. Champneys gave us the story and stated his case, but obviously recognised that it had no longer much appeal to those who had not had personal experience of living through the struggle. When the matter came to be discussed later at the Council of the Obstetrical Society and elsewhere, he worked for the amalgamation and became one of the early presidents of the Royal Society of Medicine. Again, in the last three years of his life, when his active professional work was long past, he threw himself wholeheartedly into the scheme for forming a British College of Obstetricians and Gynæcologists and was one of the signatories to its incorporation, because he appreciated the feeling among a younger generation for some body to represent the practitioners and teachers of these subjects. As a final example of his continued interest in work in the hands of a new generation, his response to the request of his friend, the late Sir Clifford Allbutt, to undertake the chairmanship of the examiners in midwifery at the University of Cambridge, may be quoted. He did this for a few years after the war, when well over 70 years of age, and those who acted with him will recollect how he threw himself into the reorganisation of that examination.

His high ideals of public service brought Champneys into touch with many aspects of medical work, but he himself obviously regarded his efforts towards the provision of a body of trained midwives for the country as his chief contribution to the common weal. His interests in this direction began with his appointment to the staff of the General Lying-in Hospital, where the training of women for practice as midwives has always been a prominent feature, and were further developed when he was made chairman of the Midwives Committee of the Obstetrical Society. He constantly referred to the part he had taken in the work of that committee and how he had thereby been brought into conflict with the British Medical Association and General Medical Council. He was thus clearly marked as the chairman of the Central Midwives Board, when constituted by the Midwives Act of 1902, for that body practically took over functions already carried on unofficially by the Midwives Committee of the Obstetrical Society. For 27 years he was annually re-elected by its members as chairman of the Board and, more than any other of its members, was responsible for moulding its procedure and policy. Its early problem was the difficult one of a new and untried body gaining the confidence of the divergent interests represented by the practising midwives it controlled, the general practitioners that came to their aid, the medical officers of health who supervised their practice, and the teachers who had to follow the Board's instructions on training. That the new body succeeded in working smoothly and avoiding serious controversy, even so far as to secure general approval was a remarkable tribute to the sagacity and tact of the man at the wheel. His was no nominal chairmanship, for he was always in touch with the business of the Board and word perfect in his part before each meeting; he was ready to sum up each item on its agenda and had a resolution in draft prepared for discussion. Until he had been over 21 years its chairman he had not missed one of its monthly sessions, and to the last he retained the confidence of its members in his wise counsel.

judicial mind, and practical knowledge of midwifery problems. Nowhere will the death of Sir Francis Champneys be more deeply felt than by the body whose destinies he has guided from the time it came into being."

Sir Francis Champneys was buried at Hampstead Cemetery. A memorial service was held at St. Bartholomew's-the-less on August 2nd. He is succeeded by his only surviving son, Captain Weldon Dalrymple-Champneys, D.M. Oxf., medical officer to the Ministry of Health.

JOHN WALLIS BARRON MASON, M.D. Brux., M.R.C.S. Eng.

Dr. Barron Mason, who died on July 25th, was born in London in 1853, and was educated at Epsom College. From there he went to the Middlesex Hospital, where he won the Broderip scholarship, and qualified in 1875. After holding resident appointments he served as a ship's surgeon for several years, visiting India and the Far East. His father had been in practice at 1, Osnaburgh-terrace, N.W., since Dr. Mason was a small boy, so on returning from the sea he went to live at this address, and after his father's retirement he ran a large general practice there for about 43 years. His health gradually failing, he retired at the end of 1929. He was a well-known and popular figure in the district, and served on the St. Pancras Panel Committee for some years. He leaves a widow, a daughter, and one son, who has succeeded him in the practice, which has now seen three generations of the same family.

JAMES ALLAN GRAY, M.D., F.R.C.P. Edin.

WE have to record the death of Dr. J. A. Gray on July 29th. He graduated in arts at Edinburgh University in 1872, in medicine in 1876, and received a gold medal for his M.D. thesis in 1880. His academic career gave the promise of his becoming a consultant physician, and he was elected a Fellow of the Royal College of Physicians of Edinburgh in 1881, but he devoted himself to general practice. He was for a period medical officer of health (part time) of the burgh of Leith, then a town of some 75,000 inhabitants. In 1894 the office was made a whole-time one, and Dr. Gray retired. He was a man of very distinct individuality; quick in perception, ready in argument, prompt and adequate in all his professional work. As medical officer of health he had to face the public health difficulties of the seaport town at a time when notification of disease was unknown, when infection was still nursed in the general hospital, and when sanitation was really in its infancy. Among other things, he was a master in the gypsy speech, and he had come a great deal in contact with the peripatetic gypsies of the North of England. Up to last year he was in active practice. He took his full share in the examination boards of the Royal Colleges, and was always a welcome companion among his colleagues. His son is Dr. J. D. A. Gray, of Liverpool.

Dr. Gray took a keen interest in the Volunteers and retired as surgeon-colonel of the 7th Royal Scots, earning the Volunteer Decoration.

MEDICAL NEWS

University of Cambridge.

At recent examinations the following candidates were successful:—

DIPLOMA IN TROPICAL MEDICINE AND HYGIENE (PART II.).

R. J. Dyson, I. A. El-ghamry, M. S. El-Kinani, A. M. Karam, C. O. Karunakaran, J. H. Loots, K. C. K. E. Raja, and W. J. Vickers.

Royal Colleges of Physicians of London and Surgeons of England.

At the Final Examination of the Conjoint Board, held from June 30th to July 22nd, the following candidates were approved in the undermentioned subjects, but are not eligible for diplomas:—

Medicine.—E. F. Adams, Manchester; R. M. Alderton, London; R. Barnes, Manchester; C. R. G. Barrington, Univ. Coll.; J. H. Bartlett, St. Mary's; W. S. Baxter, St. Bart.'s; H. H. W. Bennett, London; G. A. Betts, Birmingham; B. N. Bhandari, Durham; Marjorie E. Birch, Liverpool; Dora E. Brockbank, Royal Free; G. T. W. Cashell, King's Coll.; F. A. Clift, London; L. C. Crane, Manchester; M. J. Cunning, Royal Free; F. M. Day, St. Mary's; S. B. Dimson and G. W. Duncan, Univ. Coll.; J. R. P. Edkins, Manchester; C. F. Evans, Melbourne and London; H. Goldenberg, London; G. J. Griffiths, Westminster; Marjorie K. Hall, Royal Free; H. E. Harding, London; **Honor** E. C. Harvey, Royal Free; W. Hogg, St. Bart.'s; **A.** Jokl, Middlesex; I. J. Keidan, Leeds; G. D. Kersley, St. Bart.'s; S. J. Knight, St. Mary's; E. Lethem, Guy's; B. F. Longbotham, London; P. H. Maal, Amsterdam and Liverpool; D. G. Macdonald, London; F. G. Maitland, St. Mary's; Dorothy Makepeace, King's Coll.; J. T. Mani, Durham; Barbara A. Merlin, Royal Free; W. A. Mirza, Lucknow; H. C. Muirhead, Guy's; Lois M. Munro, Royal Free; Gladys L. Neill, King's Coll.; D. Ockman, Manchester; Doris Onions, Leeds; W. H. Poole, London; J. W. Pugh, Univ. Coll.; J. Rabinovitch, Leeds; Louise Rees and Irene P. Rowlands, Charing Cross; B. Rubinsky, London; S. Ryman, Zürich; R. S. Sandhu, Lahore; W. W. Sargant, St. Mary's; J. Shernovitch, Leeds; Rosalie Shoenberg, Royal Free; D. O. C. Simpson, London; M. Singh, Punjab and Birmingham; Violet Spiller, Royal Free; A. B. Stokes, T. R. Swarup, and G. M. Tickler, King's Coll.; W. J. Tindall, Univ. Coll.; C. Verity and N. S. Walls, Manchester; J. G. Warren and S. I. Weinstein, London; A. M. Weston, Guy's; C. Wright, Univ. Coll.; and C. H. Wrigley, St. Thomas's.

Surgery.—I. S. Acres, London; S. Amir-ud-Din, Edinburgh; R. Barnes, Manchester; D. S. Bateman, St. Thomas's; N. J. Bee, London; J. N. Bhada, Univ. Coll.; B. N. Bhandari, Durham; K. C. Buck, St. Mary's; Joan Butterworth, Royal Free; C. R. Caffry, Dublin and London; Jack Carlton, Guy's; Adelina A. Collins, King's Coll.; G. M. Conder, Middlesex; J. G. Connell, Cambridge and Sheffield; J. S. Cotman, St. Mary's; Catherine B. Crane, Royal Free; S. D. Elliott, Univ. Coll.; C. F. Evans, Melbourne and London; S. H. Ferguson, Sheffield; J. S. B. Forde, Manchester; H. N. Garrus, Guy's; G. O. Gauld, Cambridge and Middlesex; J. R. Gilmour, F. R. Glover, and I. Gold, London; G. H. Gool, Guy's; G. J. Griffiths, Westminster; J. H. Hall, St. Thomas's; Marjorie K. Hall, Royal Free; E. O. Halliwell, Leeds; M. Halperine, London; Carrie I. Hearn, Royal Free; A. A. Heathcote, St. Bart.'s; J. E. R. Heppolette, Bengal and St. Mary's; P. A. Hubbard, Univ. Coll.; G. N. Humphreys and B. Isaac, St. Mary's; L. Jacobson, London; I. J. Keidan, Leeds; C. J. King-Turner, St. George's; E. Lethem, Guy's; H. L. Lightstone, Middlesex; H. M. List, St. Bart.'s; J. Loofe, Leeds; A. H. Loudoun, St. Thomas's; W. F. McGladdery, St. Bart.'s; F. Mattar, Charing Cross; R. W. Maxwell, Univ. Coll.; E. D. Morgan, Manchester; J. E. L. Morris, Liverpool; H. S. Morton, London; G. G. Mowat and C. E. S. Oxley, St. Thomas's; F. L. L. Patrick, St. Bart.'s; M. A. Robertson, London; H. W. Rodgers, St. Bart.'s; J. Secker, Durham; J. Shernovitch, Leeds; C. K. Simpson, Guy's; S. K. Squires, St. Mary's; T. Standring, King's Coll.; Mary Sutcliffe, Leeds; R. B. Sutcliffe, Guy's; D. J. Swamy, Madras and Durham; O. Thomas, London; W. E. Thomas, Cardiff; C. K. Vartan, St. Bart.'s; C. Verity, Manchester; N. A. Vernon, St. Thomas's; F. L. Wheaton, Middlesex; R. C. W. Whitling, Oxford and London; K. L. Wig, Charing Cross; I. G. Williams, Middlesex; W. Woolley, Bristol; and C. H. Wrigley, St. Thomas's.

Midwifery.—J. E. Abell, Leeds; R. M. Alderton and P. T. Ashby, London; E. S. Asiedu-Ofei, Birmingham; W. Aukin, Univ. Coll.; Gwendolen E. Austin, King's Coll.; S. Barigrasser, St. Bart.'s; H. B. Barker, St. Mary's; G. Barwell, Guy's; D. S. Bateman, St. Thomas's; A. J. W. Beard, and F. J. Beilby, St. Bart.'s; Jessie G. Belilios, King's Coll.; C. M. Bell and W. D. Bell, St. Bart.'s; C. E. Bevan, St. George's; E. T. Blacklee, Guy's; D. A. S. Blair, St. Thomas's; O. J. Bollon, Bristol; W. V. D. Bolt, Guy's; Doris Boon, Royal Free; O. H. Bostock, St. George's; G. D. S. Briggs, St. Bart.'s; R. J. B. Broad, Middlesex; J. F. Brock, London; W. D. W. Brooks, St. Mary's; C. Budeiri, Geneva; T. S. Cave, King's Coll.; C. N. Chitnis, St. George's; S. Cimmering, St. Bart.'s; A. R. Clarke, Guy's; J. M. P. Clark, Leeds; P. Cohen, St. Bart.'s; G. M. Conder, Middlesex; K. M. Cooper, Royal Free; T. R. S. Cormack, London; J. L. S. Coulter, Bristol; Marian J. Cunning, Royal Free; R. D. Darley, Univ. Coll.; J. O. F. Davies, Middlesex; R. R. Davies, Univ. Coll.; T. F. Davies, Guy's; C. A. de Candole, St. George's; W. De Lacey and N. M. Durrani, London; J. R. P. Edkins, Manchester; S. D. Elliott, Univ. Coll.; G. A. Emmerson, St. Mary's; J. M. Erskine-Young, Liverpool; J. Finer, Middlesex; H. W. F. Freeth, Middlesex; J. W. O. Freeth, St. Bart.'s; R. J. Furlong, St. Thomas's; L. T. Furnivall, St. Mary's; G. O. Gauld, Middlesex; W. T. F. George, St.

Bart.'s; D. G. Gower, Westminster; A. Greenberg, St. Bart.'s; H. J. Griffiths, Middlesex; Constance A. Grove, Charing Cross; L. J. Hackett, St. Bart.'s; E. O. Halliwell, Leeds; K. Harris, Guy's; A. C. Hauptfleisch, Guy's; K. Hazell, King's Coll.; C. B. Hinkley, St. Thomas's; G. Holroyd, Guy's; H. W. Howell and L. Jacobson, London; D. W. James, Guy's; A. Jokl, Middlesex; L. R. Jordan, Bristol; F. Jupe, Berlin; A. Kahan, St. Thomas's; Henrica A. Kellgren, Univ. Coll.; T. A. S. Kennerley, Birmingham; J. A. Kersley, Bristol; M. H. Khan, Durham; A. A. Kidvai, Dundee and King's Coll.; M. M. Landau, Middlesex; R. C. Langford, St. Thomas's; A. J. D. Lewis, Guy's; Teresa Lightbound, Liverpool; G. A. M. Lintott, Guy's; A. W. Littlewood, St. Mary's; M. A. Lloyd, St. Bart.'s; Muriel H. E. Long, King's Coll.; G. W. May, London; J. O. McCarter, Manchester; D. P. McCoy, St. Bart.'s; T. W. Mimpriss, St. Thomas's; E. L. Monkhouse, Guy's; R. H. Moore, Bristol; I. More, Univ. Coll.; E. D. Morgan, Manchester; F. H. Morrell, St. Bart.'s; Elisabeth J. Morris, Liverpool; H. S. Morton, London; G. G. Mowat, St. Thomas's; C. G. Muller, Madras and St. Mary's; P. M. Nair, Royal Free; B. Nanjiani, Bombay; G. H. Newns and W. M. Niblock, King's Coll.; D. Ockman, Manchester; M. J. O'Donnell and J. W. Oliver, Guy's; H. J. C. Page, St. Mary's; R. Palmer, King's Coll.; P. W. Parkes, Birmingham; J. H. Peel, King's Coll.; M. W. Priest, Univ. Coll.; S. Rajapaksa, King's Coll.; J. Reeve, Westminster; W. F. Richards, J. C. Roberts, and H. D. Robertson, St. Bart.'s; J. N. N. Robinson, St. Thomas's; M. W. Robinson, Manchester; A. W. M. Rooke, Univ. Coll.; L. Rose, St. George's; J. Rosenberg, Guy's; P. M. G. Russell, Univ. Coll.; W. W. Sargant, St. Mary's; Mary A. Saunders, King's Coll.; Ida B. Saxby, Bristol; Ray Schauder, King's Coll.; G. Scott, Middlesex; J. Secker, Durham; R. H. D. Short, Univ. Coll.; A Shufleder, Leeds; A. B. Simmons, King's Coll.; H. Simpson, Manchester; K. H. Singh, King's Coll.; R. N. C. Smith, Guy's; L. R. C. South, London; K. S. Southam, Guy's; H. W. G. Staunton, St. Bart.'s; A. M. Stewart-Wallace, Univ. Coll.; J. W. Summerhayes and T. R. Swarup, King's Coll.; A. Taylor, Manchester; W. A. F. Taylor, Bristol; O. Thomas, London; G. M. Tickler, King's Coll.; R. L. H. Townsend, London; J. G. Vincent-Smith, St. George's; N. S. Walls, Manchester; Phyllis E. Watson, Charing Cross; J. H. West, St. Bart.'s; Evelyn A. M. White, Univ. Coll.; J. L. Wild, St. Thomas's; R. G. Wilbond, Bristol; I. G. Williams, Middlesex; Anne E. Williams-James, Bristol; C. Wilson, London; J. M. Wingfield, Birmingham; F. J. Wright, London; and R. B. D. Wright, St. Mary's.

Pathology.—Gwendolen E. Austin, King's Coll.; S. Barigrasser, St. Bart.'s; H. B. Barker, St. Mary's; H. W. Benham, Univ. Coll.; H. Bloom, Guy's; R. J. B. Broad, Middlesex; Dora E. Brockbank and Beatrice L. Campion, Royal Free; P. H. Charlton, Middlesex; P. Cohen, St. Bart.'s; H. E. B. Curjel, St. Thomas's; A. Cursham, Cambridge and St. Thomas's; R. R. Davies and S. B. Dimson, Univ. Coll.; G. R. Ellis, Liverpool; E. St. J. C. Emerson, St. Mary's; G. A. Emmerson, St. Mary's; D. Erskine, Guy's; A. G. Evans, Birmingham; H. W. F. Freeth, Middlesex; J. W. O. Freeth, St. Bart.'s; L. T. Furnivall, St. Mary's; H. N. Garrus, Guy's; W. F. T. George, St. Bart.'s; V. Glass, Univ. Coll.; B. N. Halder, Durham; Marjorie K. Hall and Honor E. C. Harvey, Royal Free; A. C. Hauptfleisch, Guy's; K. Hazell, King's Coll.; H. W. Howell, London; Blaguigna Illitch, Royal Free; E. Jones, St. Thomas's; M. Kosloff, B. S. Lange, and G. F. Lashmore, Guy's; H. L. Lightstone, Middlesex; Muriel H. E. Long, King's Coll.; D. P. McCoy, St. Bart.'s; R. A. Manclark, Middlesex; J. Matthew, King's Coll.; J. N. Matthews, Liverpool; E. L. Monkhouse, Guy's; I. More, Univ. Coll.; W. H. Mylechreest, St. Thomas's; G. H. Newns and W. M. Niblock, King's Coll.; H. J. C. Page, St. Mary's; R. O. Payne, Guy's; C. F. Price, W. M. Priest, and Anna L. M. Ringdahl, Univ. Coll.; H. W. Rodgers, St. Bart.'s; P. M. G. Russell, Univ. Coll.; D. N. Ryalls, Sheffield; M. Schlaff, St. Bart.'s; Ester C. Seifert, Westminster; I. Sherman, St. Bart.'s; R. H. D. Short, Univ. Coll.; A. B. Simmons, King's Coll.; E. H. P. Smith, Birmingham; J. W. P. Thompson, St. Thomas's; W. J. Tindall, Univ. Coll.; N. A. Vernon, St. Thomas's; J. H. Way, Leeds; F. L. Wheaton, Middlesex; S. O. Widmann and J. L. Wild, St. Thomas's; and A. H. Zair, Birmingham.

Royal College of Physicians of London.

At the Quarterly Comitia of the College, held on July 31st, with Sir John Rose Bradford, the President, in the chair, the following Fellows of the College were elected officers for the ensuing year:—

Censors: Dr. F. J. Poynton, Dr. W. Langdon Brown, Dr. C. R. Box, and Sir Charlton Briscoe. *Treasurer:* Dr. S. P. Phillips. *Registrar:* Dr. Raymond Crawfurd. *Harveian Librarian:* Dr. T. H. Arnold Chaplin. *Assistant Registrar:* Dr. R. O. Moon. *Library Committee:* Dr. H. R. Spencer, Dr. H. C. Cameron, Dr. C. J. Singer, and Dr. Anthony Feiling. *Curators of the Museum:* Dr. H. R. Spencer, Dr. J. H. Thursfield, Dr. S. E. Dore, and Dr. C. F. T. East. *Finance Committee:* Dr. H. Morley Fletcher, Dr. Robert Hutchison, and Dr. L. S. T. Burrell.

The following were elected Examiners:—

Chemistry: Mr. H. W. Cremer, Mr. W. B. Tuck, D.Sc., *Physics:* Dr. W. A. M. Smart, and Mr. D. Orson Wood. *Practical Pharmacy:* Prof. J. A. Gunn, Prof. W. E. Dixon, Dr. Philip Hamill, Dr. Newman Neild, and Dr. Orlando Inchley. *Physiology:* Prof. Joseph Barcroft and Prof. R. J. S. McDowall. *Anatomy:* Prof. Duncan Blair. *Pathology:* Dr. C. E. Lakin, Dr. George Graham, Prof. Matthew J. Stewart, and Dr. H. W. C. Vines. *Medical Anatomy and Principles and Practice of Medicine:* Sir Thomas Horder, Dr. A. E. Russell, Dr. Cecil Wall, Dr. E. A. Cockayne, Dr. E. P. Poulton, Dr. D. H. de Souza, Dr. Albert Ramsbottom, Dr. A. C. D. Firth, Dr. F. M. R. Walshe, Dr. E. Bellingham Smith, Dr. L. S. T. Burrell, and Ivor J. Davies. *Midwifery and Diseases Peculiar to Women:* Dr. Eardley Holland, Mr. J. B. Banister, Mr. J. P. Hedley, Mr. D. W. Roy, and Mr. A. C. Palmer. *Public Health:* (Part I.) Dr. G. Roche Lynch. (Part II.) Dr. G. F. Buchan. *Tropical Medicine:* Dr. J. C. G. Ledingham and Dr. H. Harold Scott. *Ophthalmic Medicine and Surgery:* Dr. T. Grainger Stewart. *Psychological Medicine:* (Part I.) Dr. Edward Mapother. (Part II.) Dr. Porter Phillips and Dr. Gordon Holmes. *Gynæcology and Obstetrics:* Prof. Munro Kerr. *Laryngology and Otology:* Mr. Gay French.

The following acceptances of appointments were announced: Dr. Macdonald Critchley as Goulstonian lecturer for 1931; Sir William Willcox as Lumleian lecturer for 1931, Sir Andrew Balfour as FitzPatrick lecturer for 1931; Dr. Samson Wright as Oliver-Sharpey lecturer for 1931; and Dr. J. W. McNee as Croonian lecturer for 1932.

The President announced that he had appointed Dr. Robert Hutchison to deliver the Harveian Oration, and Dr. J. S. Fairbairn the Bradshaw Lecture in 1931.

The Moxon Gold Medal, awarded every third year to the person who is deemed to have most distinguished himself by observation and research in clinical medicine, was awarded to Dr. Frederick Parkes Weber.

The Weber Parkes Prize and Medal, awarded every third year for work on the ætiology, prevention, pathology, or treatment of tuberculosis, were awarded to Prof. S. Lyle Cummins.

Sir John Rose Bradford was appointed a representative of the College on a committee appointed by the Board of Control to advise on certain matters under the new Mental Treatment Act.

Sir George Newman and Dr. J. W. McNee were elected representatives of the College on the executive committee of the Imperial Cancer Research Fund.

The Murchison Scholarship was awarded, after a competitive examination in clinical medicine, to John St. Clair Elkington, M.B., and Kenneth Moorhouse Robertson, M.B., jointly.

Dr. A. F. Voelcker was appointed to represent the College at the celebration in October of the jubilee of the foundation of Mason Science College, Birmingham, and the thirtieth anniversary of the granting of the University charter.

The following candidates, having satisfied the Censor's Board, were admitted Members:—

Philip J. Alpers, Benjamin Barling, Innes A. Brodziak, James W. Brown, Eleanor M. Creak, Philip E. J. Cutting, John Dockray, Mohammed Abdul Aziz El Gammal, John C. Hawksley, Roy H. Howells, Charu Chandra Kapila, Gwash Lal, Edward W. Lindeck, Frederick M. Lipscomb, Florence Louis, Thomas K. S. Lyle, Harry E. Mansell, Dhirendra Chandra Mazumdar, Andrew J. Morland, Santosh Kumar Mukhopadhyay, Margaret G. P. Reed, Edward G. Robertson, Gerald R. A. de M. Rudolf, Ismail Ahmed Sabri, James D. Simpson, Eliot T. O. Slater, John Smith, Bashi Lal Taneja, and John R. H. Towers.

At the same meeting of the Comitia on July 31st licences to practise were conferred upon 141 candidates (115 men and 26 women) who have passed the final examinations of the Conjoint Examining Board. The following are the names and medical schools of the successful candidates:—

Constance E. Allan, Royal Free and Charing Cross; S. G. Allen, L.D.S., London; R. E. Angel, St. Bart.'s; Lily Arratoon, Indiana and Royal Free; J. Aytoun, Middlesex; F. G. Badger, Cardiff and London; W. I. Bain, Cambridge and St. Thomas's; W. L. H. L. Bell, St. George's; S. W. T. Bentall, Oxford and London; A. C. Bhardwaj, Punjab and Guy's; I. Billig, St. Thomas's; W. R. Bion, Oxford and Univ. Coll.; A. N. Birkett, Manchester; S. Bochenek, St. Bart.'s; Kathleen M. Bodkin, Birmingham; B. F. M. Bond, Westminster; F. K. Boston, Cambridge and St. Bart.'s; Julia A. Boyd, Royal Free; L. V. O. Brown, Cambridge and Guy's; A. Buch, St. Mary's; W. R. Burrows, St. Bart.'s; M. L. Bynoe, King's Coll.; E. C. Campbell, Cambridge and St. Mary's; G. F. Carey, Cambridge and St. Thomas's; J. Chamberlain, Guy's; H. M. Chappel, Cambridge and Univ. Coll.; L. Charney, Cape and London; W. F. Church, Cambridge and St. Bart.'s; L. P. Clarke, L.M.S.S.A., St. George's; A. H. Clegg, Leeds; D. H. Collins, M.B., Liverpool; R. V. S. Cooper, M.B. Birmingham; W. C. Cresdee, St. George's; R. M. S. Cross, Cambridge and St. Bart.'s; Elizabeth T. Davies, Westminster; L. S. Davies, Cardiff and Guy's; C. G. S. De Silva, Ceylon and Guy's; C. H. Devin, St. Bart.'s; D. Divine, Cambridge and Guy's; R. H. Dodds, Cambridge and London; J. A. Doherty, Univ. Coll. and Durham; N. R. Donald, Liverpool; Mary G. H. Edwards, St. Mary's; A. Elliott, M.B. Birmingham; M. M. El Mishad, Cairo and Guy's; A. A. G. Flemming, Cambridge and Bristol; G. M. Flemming, St. Bart.'s; E. V. P. Fox, Cambridge and St. Bart.'s; Margaret L. Foxwell, Manchester; P. I. Franks, St. Bart.'s; L. P. Friedman, Univ. Coll.; Lorna M. A. Goulden Bach, Westminster; Mabel E. Grace, Royal Free; C. A. Grant, Cambridge and St. George's; E. R. Greathead, Cambridge and London; G. Hale, Cambridge and St. Thomas's; J. T. P. Handy, Univ. Coll.; R. D. Harding, Oxford and King's Coll.; Eileen E. Harvey, Royal Free; R. M. Harvey, London; Gladys M. Herbert, St. Mary's; Constance M. Hoare, King's Coll.; H. L. Hodgkinson, St. Bart.'s; Laura M. Hollingworth, Univ. Coll.; J. C. de V. Hutchinson, Cape and Guy's; E. B. Jackson, Univ. Coll.; E. J. Javeri, M.B., Bombay and London; G. H. Jennings, Cambridge and St. Mary's; H. B. John, St. Mary's; I. G. Jones, Univ. Coll.; W. D. G. Jones, Guy's; C. R. Kenchington, M.B., Birmingham; P. A. E. Lansle, M.D., Lausanne and London; S. R. Ledger, King's Coll.; J. C. Leedham-Green, Oxford and Middlesex; Edna Lock, King's Coll.; R. F. Lomax, Oxford and Guy's; R. P. Lucas, M.B.,

Bristol; H. O. Lyne, L.D.S., Guy's; Joyce MacInnes, Royal Free; Moyra I. Macnaughton-Jones, Royal Free; F. G. Mailtand, Cambridge and St. Thomas's; H. S. A. Malik, M.B., Bombay and St. Thomas's; P. T. Merlin, M.B., Birmingham; Elizabeth T. Mess and Ruth Milne, Royal Free; Blodwen Morgan and G. D. Morgan, Charing Cross; K. I. Nicholls, Bristol; T. C. Outred, Guy's; G. A. Y. Parker, St. Bart.'s; C. F. L. Patterson, Cambridge and St. George's; G. H. Pearce, Univ. Coll.; R. B. Peckham and N. S. Plummer, Guy's; N. H. L. Ridley, Cambridge and St. Thomas's; R. S. Risk, St. Bart.'s; D. M. Roberts, Cardiff and London; J. M. Robertson and L. K. Robson, Guy's; Helen E. Rodway, Royal Free; A. L. Rowson, Manchester and London; M. H. Salaman, Cambridge and London; F. M. Sandford, St. Thomas's; K. C. Sarkar, M.B., Calcutta and King's Coll.; J. M. Searle, London; T. S. Severs, M.B., Durham; Violet R. Sharp and Dorothy A. Sharpe, Royal Free; C. J. C. Siggers, L.D.S., Guy's; W. W. Simkins, St. St. Mary's; C. H. Sims, Westminster; K. C. S. Skene, Univ. Coll.; M. W. Smith, Manchester; J. Sowerbutts, Cambridge and St. Thomas's; A. A. Staunton, St. Bart.'s; D. J. R. Steen, Cambridge and St. Thomas's; G. V. Steward, Guy's; J. G. Stewart, Westminster; H. M. Strover, M.B., Bristol; H. B. Swift, M.B., Punjab and St. Mary's; K. T. Taskar, M.B., Bombay and London; C. E. Taylor, Cambridge and King's Coll.; M. R. Thomas, Univ. Coll.; K. S. Thompson, London; C. J. L. Thurgar, Univ. Coll.; T. F. Tierney, St. Bart.'s; O. T. Wade, Leeds; W. N. P. Wakeley, King's Coll.; E. C. Watson, St. Mary's; J. C. S. Wells, Univ. Coll.; Margaret E. Williams, Bristol; T. C. Williams, Wales and Univ. Coll.; T. G. Williams, Middlesex; B. Willinsky, M.D., Toronto; Maureen D. Willmott Evans, Royal Free; F. W. Willway, King's Coll.; W. E. Wimberger, M.B., Birmingham; H. A. M. Wintle, St. Thomas's; Barbara E. Woodhead, M.B., Birmingham; and F. C. A. Wright, King's Coll.

The undermentioned diplomas were conferred (jointly with the Royal College of Surgeons) upon the following candidates:—

Diploma in Psychological Medicine.—R. D. Curran, J. W. Fisher, J. Flind, R. N. B. McCord, W. M. McGrath, W. Ogden, D. N. Parfitt, R. Ström-Olsen, V. Vassallo, and A. W. Watt.

Diploma in Laryngology and Otology.—C. A. Amesur, A. B. Berkowitz, E. G. Dermer, A. M. El Hakim, A. El S. Handousa, B. Hiller, I. Kallmeyer, F. T. Land, M. R. Levey, H. Lewis, G. R. Marcano, F. G. Meade, F. Phillips, S. N. Prasad, H. W. Savige, G. S. Seed, and S. K. Sen Gupta.

Diploma in Public Health.—Edith L. I. Abbott, Iris I. G. Adams, H. W. Allen, J. V. Almeyda, G. R. M. Apsey, S. K. Arora, F. R. Boland, M. S. Chadha, S. Dakshinamurty, Edith M. Davies, I. G. Davies, P. T. J. Doss, S. W. Eveson, A. H. Gale, K. K. Goh, Phyllis M. Grainger, A. Hamid, E. B. Jones, B. N. Khanna, N. K. Kumaran, B. K. Lal, B. D. Malhotra, B. D. Mallick, R. Mansoor, H. D. M. L. Murray, W. R. Nash, G. E. B. Payne, S. M. Rahman, G. A. Roche, A. Shafi, J. Spencer, M. P. Srivastava, and V. Whitman.

Diploma in Tropical Medicine and Hygiene.—C. A. Alvarado, T. F. Anderson, W. K. Connell, A. B. Cook, M. K. Kelavkar, E. M. Lourie, D. R. McPherson, F. Marsh, T. H. Nolan, P. K. Rao, C. E. Roberts, R. Shelley, M. Singh, R. G. Spink, T. W. Stephens, Dorothy E. Stewart, Marjorie V. N. Sudds, B. A. Taylor, S. E. Theis, H. G. Timbres, Gladys M. Tullidge, and E. M. Wijerama.

Diploma in Ophthalmic Medicine and Surgery.—Dorothy R. Adams, T. S. Blacklidge, H. P. Chaudhuri, M. A. Contractor, E. R. Cunningham, J. Dadabhoy, D. R. Gawler, L. M. Green, Millicent Hamilton-Johnstone, H. V. Ingram, S. Lal, Laura M. Ligertwood, S. S. Lindsay, L. Mahadevan, T. M. Mansfield, A. B. Rao, C. N. Smith, L. Staz, L. Tarneja, H. Tomkin, T. a'B. Travers, and D. K. Weston.

Royal College of Surgeons of England.

AN Ordinary Meeting of the Council was held on July 31st, with Lord Moynihan, the President, in the chair.

The Honorary Gold Medal of the College was awarded to Mr. R. Lawford Knaggs, F.R.C.S., in appreciation of his services to the Museum, more especially in preparing a catalogue of and revising the Strangeways Collection of specimens illustrating arthritis.—The first Macloghlin Scholarship for medical students was awarded to L. J. Honeywill of Bournemouth School.—Mr. Frank Coleman, dental surgeon to St. Bartholomew's and theRoyal Dental Hospital, was elected a Member of the Board of Examiners in Dental Surgery.—Mr. C. H. Fagge and Dr. R. G. Canti were elected Examiners in Pathology under the Examining Board in England.—Prof. William Wright and Prof. C. Lovatt Evans were nominated to conduct the Primary Examination for the Fellowship in Australia in 1931.

Diplomas of Membership were granted to the following candidates, whose names appear above as recipients of the L.R.C.P. Lond., with the exception of J. A. Boyd, M. A. Grace, R. D. Harding, L. M. Hollingworth, J. MacInnes, R. Milne, H. E. Rodway, and V. R. Sharp. Other diplomas were granted jointly with the Royal College of Physicians to the candidates whose names are given above.

Society of Apothecaries of London.

At recent examinations the following candidates were successful:—

Surgery.—M. M. Barritt, Manchester; G. T. W. Cashell, King's Coll. Hosp.; J. S. P. Coutts and G. R. Davies, St. Mary's Hosp.; H. Glynn, Charing Cross Hosp.; C. R. Graham, Kingston, Ontario; F. Mattar, Charing Cross Hosp.; G. W. Sturgess, St. Bart.'s Hosp.; W. H. Willis, Western Reserve Univ., U.S.A.; and G. K. Wilsker, Liege and Royal Free Hosp.

Medicine.—M. Asaad, St. Mary's Hosp.; M. M. Barritt, Manchester; A. Buch, E. C. Dymond, and J. E. R. Heppolette, St. Mary's Hosp.; S. R. G. Pimm, Guy's Hosp.; Z. Risk, Birmingham; A. L. Thomas, Guy's Hosp.; and G. H. C. Walmsley, Manchester.

Forensic Medicine.—E. C. Dymond, St. Mary's Hosp.; R. F. T. Finn and J. D. B. Games, St. Bart.'s Hosp.; C. Seeley, St. Mary's Hosp.; and I. J. Todd-Naylor, King's Coll. Hosp.

Midwifery.—M. M. Barritt, Manchester; R. F. T. Finn, St. Bart.'s Hosp.; G. W. Hinchliffe, St. Mary's Hosp.; E. J. Jones, Cardiff; C. G. Muller, St. Mary's Hosp.; R. D. Newton, St. Bart.'s Hosp.; and G. H. C. Walmsley, Manchester.

The Diploma of the Society was granted to th following candidates, entitling them to practise medicine, surgery, and midwifery: A. Buch, G. T. W. Cashell, E. C. Dymond, J. D. B. Games, J. E. R. Heppolette, S. R. G. Pimm, Z. Risk, A. L. Thomas, G. K. Wilsker, and W. H. Willis.

University of London.

Dr. J. M. W. Morison has been appointed to the University Chair of Radiology tenable at the Cancer Hospital (Free). He is at present l·cturer in radiology at the University of Edinburgh.

A. R. F. Thompson, Guy's Hospital, has passed the fourth (B.D.S.) examination in dental surgery.

At a meeting of the University Court on July 30th it was stated that, subject to Parliamentary sanction, the annual Treasury grant in respect of the University and its schools will be £556,000 for the academic year 1930–31. The amount of the grant for 1929–30 was £496,050. For 1930–31 the interim maintenance grant from the London County Council will be £105,000, which represents an increase of £24,000 on the existing grant. The London County Council has decided, subject to certain conditions, to make a total capital grant of £250,000 towards the erection and equipment of buildings on the Bloomsbury site and a capital grant for the quinquennium 1930–35 of £150,000 towards the capital requirements of schools not connected with the Bloomsbury site.

Royal College of Physicians of Edinburgh, Royal College of Surgeons of Edinburgh, and Faculty of Physicians and Surgeons of Glasgow.

The following candidates for the triple qualification have been approved and have been admitted as licentiates:—

H. H. Jones, Esther A. Michael, John McConnell, J. E. la Frenais, A. D. Wilson, Cyril Bellamy, J. B. Harris, A. R. Hunt, C. B. Watson, J. P. Walsh, R. L. Allan, H. C. Bodemer, J. L. W. Davies, Effie E. Keighley, William Stevenson, M. P. Moss, Mah Kee Yong, W. E. M. Blamey, William Graham, Chua Chow Teck, Premarathna Kulasinghe, Chandra Dasa Amarasinha, I. D. Grant, E. T. Buck, J. A. S. de Sampayo, R. P. Carew-Smyth, R. S. Wilson, and Bhagwan Wadhumal Advani.

The following have satisfied the examiners in the undermentioned subjects:—

Medicine.—Amin Fazary, Kastooril Cranganore Shankara Menon, Kwong Lam Loh, Adian Joseph Abeyesundere, Richard Morton, Maharaj Narain Rozdon, J. B. D. Oliver, J. C. Blok, J. L. K. Lawson, Parshotam Dass, and Fouad Nafi.

Surgery.—Amin Fazary, Kwong Lam Loh, Yatramulle Mohandirange Edwin Abeyesundere, W. E. S. Winne, and Joseph Rosenberg.

Midwifery.—Kwong Lam Loh, Adian Joseph Abeyesundere, Richard Morton, Maharaj Narain Rozdon, Yatramulle Mohandirange Edwin Abeyesundere, Joseph Rosenberg, Mahabalaga Don Daniel Jayawardana, Parshotam Dass, and Gavin Brown.

Medical Jurisprudence and Public Health.—F. R. Le Roux, Euphemia Cardwell, Ying Hong Kwan, R. D. Johnston, Barnet Meyerowitz, A. M. Clement, Frederick Ludorf, Stewart McCallum, Helen H. Norris, Wai Ming Tso, F. A. Ebert, I. M. Sclare, Donald Cameron, J. P. Collee, L. J. Goggins, Max Nathan, Julius Osipowitz, and H. F. Ezzet.

Research on Rheumatoid Arthritis.

The University of Manchester invites application for a Fellowship for investigation into the causes and treatment of rheumatoid arthritis. Particulars will be found in our advertisement columns.

Course in Mental Deficiency.

For the benefit of those engaged in the training of mental defectives a course will be held in London from August 30th to Sept. 20th by the Central Association for Mental Welfare, 24, Buckingham Palace-road, S.W. 1.

International Congress of Radiology.

The Third International Congress of Radiology will be held in Paris from July 27th to 31st, 1931. The president is Dr. Antoine Bèclere, the secretary-general Dr. R. Ledoux-Lebard, and the address of the Congress, 122, rue la Boëtie, Paris VIII^e^

London Hospital Sunday Fund.

The total amount received by the Fund this year was £73,012, which is about £5000 less than in 1929. The number of institutions which have applied for help is 237, an increase of five, and the Council have decided to distribute £73,000.

Treatment of Early Mental Patients.

The mansion of Wellwood, Pitfodels, is being acquired by Aberdeen Infirmary as a private nursing home for the treatment of early cases of nervous and mental disease. The home will receive patients as voluntary cases without legal formalities. The cost of purchase and adaptation will be about £12,000, and the house will accommodate 20 patients and the nursing staff.

An International Hospital Ward.

At a luncheon given last week by the Governors of the Middlesex Hospital to foreign and American press representatives Prince Arthur of Connaught, the Chairman, suggested the desirability of creating an international ward. Mr. Comyns Berkeley, obstetric and gynæcological surgeon to the hospital, stated that on an average one scientist or medical man from abroad visits the hospital each week, that an average of 45 students attend the post-graduate class, and nurses from Germany, Holland, and Sweden are trained. Two out of every seven patients are of foreign birth.

Hospital Extensions.

The Duke of Portland last week laid the foundation-stone of a new block of Worksop Victoria Hospital which will contain 40 beds and training quarters for nurses. The two new wards will be used for male surgical cases and the cost will be £12,000. There is already a long waiting list.—Last week Lord Howard of Penrith opened two new wards and a Pathological Department at the Cumberland Infirmary, Carlisle. The Balfour Paul Ward is named after the late honorary surgeon. The infirmary now contains 150 beds.—The out-patients' department and the accommodation for nurses at the Devon and Exeter Hospital are to be enlarged at a cost of £20,000.

Medical Diary

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY, August 11th, to SATURDAY, August 16th.—ALL SAINTS' HOSPITAL, Vauxhall Bridge-road, S.W., Afternoon and Evening Course of Clinical and Cystoscopic Demonstrations (Male and Female).—BROMPTON HOSPITAL, All Day Course. Further particulars from the Fellowship of Medicine.

Appointments

WATSON, R., B.Chir. Camb., L.R.C.P. Lond., M.R.C.S., has been appointed Assistant Medical Officer of Health and Assistant School Medical Officer to the Doncaster Corporation.

Vacancies

For further information refer to the advertisement columns.

Altrincham General Hospital, Cheshire.—Jun. H.S. At rate of £120.
Ashton-under-Lyne, District Infirmary.—H.S. At rate of £150.
Barnsley, Beckett Hospital and Dispensary.—Res. Surg. O. £300.
Bath, Royal United Hospital.—Asst. H.S. At rate of £120.
Bedford County Hospital.—Asst. H.S. £130.
Bethnal Green Hospital, Cambridge-road, E.—Jun. Asst. M.O. £3..).
Birmingham, City Hospital, Little Bromwich.—3rd and Jun. Asst. M.O.'s. £350 and £300 respectively.
Birmingham, Highbury Hospital, Moseley.—Res. Asst. M.O. £300.
Birmingham, Midland Hospital, Easy Row.—H.S. £200.
Birmingham, Queen's Hospital, Medical School.—Med. Reg. £200.
Blackburn, Royal Infirmary.—3rd and 4th H.S.'s. £175 and £150 respectively.
Bradford City, Municipal General Hospital, St. Luke's.—H.P.'s and H.S's. Each at rate of £200.
Bradford, Royal Eye and Ear Hospital.—Jun. H.S. £150.
Brighton, Royal Sussex County Hospital.—Cas. H.S. £120.
Carlisle, Cumberland Infirmary.—2nd H.S. Also H.S. to Special Depts. Each at rate of £155.
Chester Royal Infirmary.—H.P. £150.
City of London Hospital for Diseases of the Heart and Lungs, Victoria Park, E.—H.P. At rate of £100.
Colchester, Royal Eastern Counties' Institution for the Mentally Defective.—Research Worker. £750.
Connaught Hospital, Orford Rd., Walthamstow, E.—Sen Res. H.S. At rate of £150.
Croydon County Borough, Public Assistance Dept.—Res. Asst. M.O. for Mayday-road Hospital. £300.
Croydon County Borough, P.H. Dept.—Asst. M.O.H. for Obstetrics. £600.
Derbyshire Royal Infirmary, Derby.—Ophth. H.S. £150.
Dewsbury, New Dewsbury and District General Infirmary.—Jun. H.S. £150.
Doncaster Royal Infirmary.—Three H.S.'s and one H.P. All at rate of £200.
Durham County Council.—District Tuber. M.O. £500.
Gloucester County and City Mental Hospitals.—Jun. Asst. M.O. £350.
Gloucester, Gloucestershire Royal Infirmary and Eye Institution.—H.P. At rate of £150.
Hammersmith Hospital, Ducane-road, Shepherd's Bush, W.—3rd Asst. M.O. £275.
Hertford County Hospital.—H.P. At rate of £150.
Hostel of St. Luke, 14, Fitzroy-square, W.—Res. M.O. £200.
Ilford, King George Hospital.—Res. M.O. £200.
Infants Hospital, Vincent-square, Westminster, S.W.—Two H.P.'s. Each at rate of £75.
King's College Hospital, Denmark-hill, S.E.—Jun. Physician.
Leeds, Herzl Moser Hospital, Leopold-street.—R.M.O. £100.
Liverpool City.—Res. Asst. M.O.'s. £200.
London University, South Kensington, S.W.—William Julius Mickle Fellowship. £200.
Manchester Royal Eye Hospital.—Jun. H.S. £120.
Manchester University.—Demonstrator in Chemical Pathology. £350.
Margate and District New General Hospital.—Res. M.O. £125.
Marseilles, Queen Alexandra Memorial Hospital.—Res. M.O. £250.
Merthyr General Hospital.—Res. H.S. At rate of £150.
Middlesex Hospital, W.—Medical Men interested in Radium Treatment of Malignant Disease.
Nottingham, Hospital for Women.—H.S. At rate of £150.
Nottingham and Midland Eye Infirmary.—Res. H.S. £200.
Oldham Royal Infirmary.—Two H.S.'s to Special Departments. Each at rate of £175.
Plymouth, South Devon and East Cornwall Hospital.—Hon. P. and Hon. Asst. P.
Preston County Borough.—Asst. School M.O. £600.
Richmond, Surrey, Royal Hospital.—Jun. H.S. At rate of £100.
Rochdale Infirmary and Dispensary.—Jun. H.S. £175.
Ryde, Royal Isle of Wight County Hospital.—Two Hon. Anæsthetists.
Southampton County Borough.—Asst. School Dentist. £450.
St. Charles Hospital, Charles-square, Ladbroke-grove, W.—3rd Asst. M.O. £300.
St. Giles' Hospital, Brunswick-square, S.E.—Deputy Med. Supt. £650.
Stockport Education Committee.—Asst. School Doctor. £500.
Saint Mark's Hospital for Cancer, Fistula, &c., City-road, E.C.—Res. Surg. O. At rate of £150.
Salford, Hope Hospital.—Res. Surg. O. £400.
Sheffield Royal Hospital.—Res. Anæsthetist. At rate of £80.
Swansea County Borough, Infectious Diseases Hospital.—Res. M.O. £350.
Walsall Manor Hospital.—Res. Asst. M.O.'s. £200 and £150 respectively.
Warwick County Mental Hospital, Hatton.—Jun. Asst. M.O. £350.
West Ham County Borough.—Deputy M.O.H. £850.
Winchester, Royal Hampshire County Hospital.—Sen. Res. M.O. Also H.S. £200 and £150 respectively.
Wolverhampton Royal Hospital.—Res. Asst. S. and Surg. Reg. £300. Also Cas. O. and Res. Anæsthetist. At rate of £125.

The Chief Inspector of Factories announces vacancies for Certifying Factory Surgeons at Saxmundham (Suffolk), and at Totton (Hampshire).

Births, Marriages, and Deaths

BIRTHS.

BEARE.—On July 31st, at Deepdene Park-road, Dorking, the wife of C. E. Beare, M.B., F.R.C.S., of a daughter.
RICHARDS.—On July 28th, at Westbury, Wilts, the wife of Dr. W. K. A. Richards, of a son.
WILLIAMSON.—On July 29th, at Ziarat, Baluchistan, India, the wife of Major Williamson, O.B.E., I.M.S., of a son.

DEATHS.

CHAMPNEYS.—On July 30th, at Littlemead, Nutley, Sussex, Sir Francis Henry Champneys, Bt., M.D., F.R.C.P., aged 82.
HOWORTH.—On July 28th, Wilfred Howorth, M.R.C.S., L.R.C.P., Brevet Colonel, R.A.M.C.(T.), of Brunswick-road, Withington, Manchester, aged 63.
WALKER.—On July 27th, at a nursing home, suddenly, Capt. J. T. Ainslie Walker, R.A.M.C.(T.F.), F.R.S.M., F.I.C., F.C.S., &c.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

INDEX TO "THE LANCET," VOL. I., 1930.

THE Index and Title-page to Vol. I., 1930, which was completed with the issue of June 28th, is now ready. A copy will be sent gratis to subscribers on receipt of a post-card addressed to the Manager of THE LANCET, 7, Adam-street, Adelphi, W.C.2. Subscribers who have not already indicated their desire to receive Indexes regularly as published should do so now.

NOTES, COMMENTS, AND ABSTRACTS

THE AUSTRALIAN CANCER ORGANISATION.

By ARTHUR BURROWS, M.D., M.R.C.P., D.M.R.E.,
RADIUM AND CANCER ADVISOR TO THE COMMONWEALTH GOVERNMENT.

THE movement which led to the establishment of a modern cancer organisation in Australia had its origin in events about six or seven years after the end of the war. A group of public-spirited individuals formed a cancer treatment and research committee in Sydney, appealed for funds and raised £130,000 in Sydney and New South Wales. The successful treatment of an Australian patient by radium in America, under conditions which attracted some public attention, led also to representations being made to the Commonwealth government pointing out the necessity for the provision of satisfactory radium treatment in Australia. As a result of further inquiries this government decided to purchase 10 g. of radium, and a radium advisor was appointed to see that it was properly distributed and effectively used.

Shortly before the actual purchase of the radium the Minister for Health appointed a cancer advisory committee of prominent medical men and scientists to advise on any steps which should be taken in connexion with the new cancer movement in Australia. It was stated in the first instance that the government did not intend to supply all the money and material necessary for the establishment and equipment of cancer centres. At the same time the Minister encouraged local effort by grants to each research and treatment fund as it was raised. To New South Wales, Queensland, South Australia, and Western Australia, the Commonwealth government gave £5000, while in each instance the separate State governments gave to their own State funds a like contribution. So far Victoria and Tasmania, although they have contemplated action, have not fallen into line in this respect.

In Sydney the cancer research committee has been constituted a committee of the University, and a similar organisation has been created in South Australia. In Queensland a separate cancer trust has been formed which carries out its work as a completely independent body. In Western Australia the money was largely raised by Perth Hospital with outside help for a definite purpose, and when this object was achieved the fund was closed.

THE RADIUM CENTRES.

The national organisation which has been largely built up round the Commonwealth purchase of radium has been developed along well-defined lines. It was recognised in the beginning that for the public to receive the maximum benefit for radium treatment it must be administered only by those competent through experience and teaching to give it, and that for the further purpose of rendering the radium treatment offered more efficient, the radium should be located at large centres where considerable quantities of radium were available. It was, therefore, decided to establish one radium centre at each of the six capital cities. This rule has been fairly strictly applied, but in a country of the size and with the sparse population of Australia it has been found necessary to make a limited number of modifications.

Thus Townsville, in the North of Queensland, which fulfils the functions of the commercial capital of that district and is situated nearly 1000 miles from Brisbane, was given a small supply of radium. The large town of Newcastle was also brought into the scheme, while Launceston, which offers facilities practically equal to those of Hobart in Tasmania, was also constituted a sub-centre. Bendigo was the only other town thus favoured.

It is understood, however, that only a limited amount of work, more or less clearly defined, ought to be done at these sub-centres, and that any case requiring treatment by large quantities of radium must be sent on to the main capital centres. If there is any doubt cases are always advised to attend at a main centre, and the requisite arrangements are made.

In each capital city the radium and cancer centre is established at the main teaching hospital, or in the event of there being no medical school, at the largest public hospital. In Sydney and Adelaide, where each cancer research committee is a committee of the University, the University has been given charge of the radium. In Brisbane, Melbourne, Perth, Hobart, and the minor centres, the radium has been placed in the custody of the local authority governing the hospital. The radium assigned to each hospital has only been lent, and the loan has been made on terms definitely set out in a signed agreement. This agreement lays down the conditions under which the radium must be safeguarded, controlled for treatment, and made available for instructional purposes. It also sees, so far as an agreement can, that the investigation, treatment, and follow-up of cancer cases is carried out in a proper and scientific manner.

The local authorities in addition to the radium have provided, out of their local funds and subsidies, deep X ray machines for cancer treatment, and the accommodation and staff laid down as necessary by the Commonwealth Department of Health. Notes of cases are written on an official case-sheet which is provided by the department and used throughout the continent.

In every centre the Commonwealth recommendation has been carried out of establishing a treatment or consulting committee consisting of a limited number of surgeons, physicians, and specialists which meets at regular intervals to consider, discuss, and institute the best means of treatment of the cancer cases referred to the centre, and, at the same time, a director has been appointed for each centre in general control of the radium and X ray work and acting as representing the committee in its absence. Usually the director is a radiologist, but in one or two cases a surgeon or physician has taken on the work and devoted himself almost entirely to it. This statement leads to another point—namely, that the Department of Health has been insistent throughout that nobody shall handle radium unless he promises to give a certain definite minimum amount of time weekly to the work. The correct use of radium demands a very considerable special knowledge on the part of the therapist and as, in the majority of cases of serious cancer, the patient has only one reasonably good chance of success from treatment, it is felt that it would be wholly against the public interest to let patients take the risk of submitting to inefficient radium or X ray treatment. In the same way it is felt, that as most cancer patients can travel, it is better for them to go to get satisfactory treatment at a big centre than that they should have inefficient treatment provided at their door.

In some States free railway passes are given to poor patients travelling to the main centres, and it is hoped that in due course the local authorities will be able to see that accommodation is provided for country patients who come to the metropolis while they are waiting for radium treatment, or that the organisation is so worked out that the period of waiting is negligible. It is usually found that the cost of keep and the loss of time and work is a greater financial burden and domestic difficulty than the provision of the railway fare.

DIAGNOSIS AND RESEARCH.

The question of the diagnosis of cancer apart from its treatment has received much consideration. In the great cities adequate facilities for the micro-

scopic examinations of tumours is provided, and these facilities are rendered as simple and inexpensive as possible. In fact, in the majority of instances histological examinations can be obtained free of charge. In Perth part of the cancer fund that has been raised is being expended on the provision of a well-equipped pathological laboratory for the examination of cancer patients. This laboratory will constitute a part of a complete cancer block which is in the course of erection.

Some considerable time before the recent cancer movement began in Australia the Commonwealth Department of Health had started and carried out the policy of providing and staffing pathological laboratories in many of the smaller centres which were not well equipped with facilities for pathological examinations. These laboratories have been very successful, and are available in all those districts in which they are established for the early examination of pathological material taken from suspected cancer cases.

Research on a considerable scale is being conducted directly under the auspices of the cancer research committee of the University of Sydney, and although any aspect of the subject may be considered by this organisation, it is taking particular interest in the problems which arise in the course of the study of the action of X rays and gamma rays on tissues, and the application of observations on the fundamental structure of organic and inorganic matter to cancer research. Research is also carried on with the help of the Commonwealth Government subsidies in Melbourne and Adelaide. Dr. Thomas Cherry carried out his work on the relationship of tuberculosis and cancer under these conditions, while the influence of diet and other factores in the promotion of certain blood diseases and tumours in mice has been investigated at Adelaide University. This work is being continued under the auspices of the cancer research committee. At the Commonwealth Serum Laboratories at Melbourne a particular line of cancer investigation has also been undertaken and is in progress.

Research is being encouraged where possible at every cancer centre, and an endeavour is being made to conduct the radium, X ray, and other treatment with this end in view. The centre is always prepared to attempt other forms of treatment besides the usual ones by means of surgery, radium, and X rays. Lead treatment has not been very successful in Australia, while diathermy has largely developed into an accessory rather than a primary method of cancer treatment.

The Department of Health acts as a coördinating factor between all the cancer centres that have been established, and through the Cancer Supplement of the official journal *Health* publishes articles of interest on cancer matters and gives items of news in respect to the action which is being taken by different local authorities. Various of the States have published posters and pamphlets giving information to the public on cancer, and the department is also interested in this type of work and other publicity methods.

TELECURIETHERAPY AND EMANATION.

An attempt has been made to give full facilities for radium work. In the first instance 4 g. of radium were mounted in a temporary container for administering "mass treatment" at the Melbourne Hospital. This treatment was carried on for a number of months before necessity compelled the breaking up of the radium source and its distribution. This action was much regretted, as it had been intended to carry on the work on a much bigger scale, but it should be stated that there was a certain amount of disappointment in the results obtained while it was in use. Arrangements have now been made to provide radium at Melbourne and Sydney for use as a radium "bomb." Melbourne has 1 g. of radium available and in use for that purpose and Sydney slightly less.

A departmental emanation centre has been established at the University of Melbourne. The emanation provided is available to recognised centres which fulfil the conditions imposed by the Department of Health. The idea of establishing the radon centre was partly that it might be useful to fill gaps in the cancer organisation and might be employed in the treatment of those rare cases in which the necessity of travelling to a main centre would be a genuine hardship. But it was regarded as of still greater importance because it would provide a malleable source of radiation available for any rapid change in technique or for investigation; besides which it was felt that certain techniques, such as the gold "implant" technique of the Memorial Hospital, New York, and the special technique of Muir, also of New York, for the use of emanation ought to be tested and developed. Already it has been possible to institute certain improved methods in the mounting of emanation for treatment. The radium emanation is now in daily use.

An emanation station is also now complete and producing radon at the University of Sydney under the charge of the university cancer research committee. Emanation depôts for the carrying on of specialised emanation treatment and research are also in process of development at each of the other State capitals of the mainland. In every case a trained physicist will be in charge of the emanation station, which is placed under the general control of the University.

(To be concluded.)

THE DUTCH PESSARY.

To the Editor of THE LANCET.

SIR,—With reference to Dr. Norman Haire's letter on p. 225 of your issue of July 26th, I would like to make some comments on our experience of the Dutch rubber cap at the North Kensington Birth Control Clinic. The purpose of this design of cap is to be a diaphragm across the vaginal passage. To achieve this object, the circular rim must lie closely in contact with the vaginal walls, without the patient being conscious of its presence. In theory there are two levels in the vagina where this can be attempted; one, as high up as the length of the cervix will allow, and the other low enough to ensure that the anterior section of the rim is in immediate contact with the posterior surface of the pubic symphysis. The slope of the bone then acts as a stop to the downward passage of the cap rim when intra-abdominal pressure is exerted. As long as the circumference of the cap is large enough to maintain contact with the vaginal walls at every point, it does not matter at what degree of obliquity the plane of the rim lies.

Dr. Haire does not state clearly what is his aim in choosing the best size of cap for each patient. I have found that the higher level, although theoretically sound, has two practical objections: first, the vagina tends to become smaller in diameter at higher levels than at the lowest level, therefore a cap which fits a higher and smaller diameter tends to slip down and out when the patient moves or defæcates; second, many patients have not long enough fingers to reach the rim in this position, and so there are difficulties in extraction.

My aim in choosing the best size of Dutch cap is to find the smallest circumference which will remain snugly in contact with the symphysis when the patient exerts strong intra-abdominal pressure. I have found that a size which only just fulfils this condition neither comes out nor gives any discomfort, nor is its presence noticed by the wearer.

Unlike Dr. Haire, I have found that no type of cap is reliable when used alone. Sperms are able to swim up the moist vaginal walls past the rim of any cap. Our records contain several cases of failure from this cause; the patients' supplies of chemical spermaticide run out, and they trust to the cap alone, and after long periods of safety they conceive. At our clinic I no longer advise douching. I use the

small (grs. 2) pellet of quinine and urea hydrochloride made by Parke, Davis and Co. It can be inserted either above or below any type of cap. If it is used above I find quick solution is effected if a small quantity of water is first poured into the cap, and the pellet put into the water. Our patients much appreciate the added simplicity of this method, and the freedom from the habit of douching, a procedure which presents serious practical difficulties to many of them. A douche is unnecessary, because it is desirable that the quinine solution shall remain in the vagina as long as possible.

I am, Sir, yours faithfully,

HELENA WRIGHT.

IN THE MATTER OF AGE-LIMIT.

To the Editor of THE LANCET.

SIR,—I would like to endorse Ex-Temporary Civil Servant's letter in your issue of July 26th. It seems odd that committees who individually would never think of employing youthful and inexperienced doctors, no matter how keen or well qualified, are so ready to impose an early age-limit in the making of public appointments. Evidently experience has no value in this connexion, yet the same committee members acting on the boards of voluntary hospitals would most certainly consider age and experience as weighty factors in choosing the permanent staff.

In the first case there may be thirty or forty candidates to choose from, but the job goes to one of the juniors; in the second, with a field of possibly half a dozen, the younger men have no chance! Superannuation schemes are not the only explanation, although they frequently act to the disadvantage of medical employees. Medicine and surgery are still practised as they should be in most voluntary hospitals, but the practice of public health entails a series of special work which only the younger men will undertake with a view to special employment.

It may be added (and may I be forgiven for mentioning such a thing) that a certain forgotten episode known as the Great War made some of us middle-aged assistants five years older, five years wiser, and five years poorer.

I am, Sir, yours faithfully,

AN ASSISTANT MEDICAL OFFICER.

HEALTH IN WEST AFRICAN SERVICE.

THE report on vital statistics among non-native officials in West Africa shows a slight increase in the death-rate, from 6·7 per 1000 in 1928—a record year—to 7·7 per 1000 in 1929. It is interesting that of these deaths, 33 in all, only eight were due to tropical diseases: six cases of blackwater fever, one of typhoid, and one of malaria associated with lobar pneumonia. The remainder were due either to accident or such causes as cardiovascular degeneration and bronchopneumonia, or appendicitis and other surgical conditions. The invaliding rate has decreased from 11·7 per 1000 in 1928 to 10·1 in 1929, the lowest figure yet recorded.

The remarkable improvement in the condition of the country is indicated by comparing some of the figures for 1903 with those of 1929. The death-rate per 1000 in 1903 was 20·6, and the average length of service of those who died was one year and nine months; the corresponding figures for 1929 are 7·7 per 1000, and eight years. Invaliding in 1903 reached 65·1 per 1000, with an average length of service of two years; now the average length of service is eight years two months, and the invaliding rate has fallen to 10·1 per 1000, as noted above. Another comparison can be made on the average length of service on termination: two years and four months in 1903, now eight years and two months.

It may be noted that the rates per 1000 of deaths and invalidings are lowest at the age of 30 years, and that while the death-rate is higher at 25 than 35, the invaliding rate is considerably higher at 35 than at 25; the second fact is possibly responsible for the divergence in the death-rates.

In his Chadwick lecture on Health in West Africa (THE LANCET, 1930, i., 843) Prof. D. B. Blacklock drew attention to the extreme expense of sanitary measures, expense which handicaps sanitarians in their attempt to eradicate disease with limited financial resources. It must also be remembered that, though the report of vital statistics already mentioned indicates the improvement in health among a certain part of the white community, it is no index of the health of the native population; Dr. Blacklock referred to some of the diseases prevalent among the West African natives, and described the difficulties of treatment where the medical service is limited and ideas of sanitation primitive.

OPHTHALMIC HOSPITAL IN JERUSALEM.

THE report of this hospital, founded by the Order of St. John, shows that it continues to do good work in spite of a falling off in the numbers attending during the year 1929. This was due to the disturbances which took place last August, when Jerusalem was in a state of siege for a week. The work of the six ophthalmic clinics in different parts of Palestine was also hampered; nevertheless the total number of patients examined in the hospital during the year was over 15,000, in the clinics over 14,000. Of the operations performed, over one third were on account of trichiasis. The hospital is the possessor of two plaques of radium. During the year, eleven patients were treated with radium, seven of them being cases of spring catarrh. Of the new patients seen, as many as 92 per cent. were trachomatous. According to the report the spread of trachoma is fostered by epidemics of acute conjunctivitis which, of late, have been unusually severe in Palestine.

TREATMENT OF ANAL FISSURE.

R. Bensaude and co-workers[1] have lately recorded their experience of the treatment of anal fissure by the method described by A. B. Graham in America in 1926. Graham injects 5 per cent. quinine-urea solution under the base of the fissure, and F. C. Yeomans, in his book on "Proctology," reports that this has given 70 per cent. of successes. Bensaude calls attention to the severity of the "fissure crisis" and the intense sphincteric spasm, which may last for ½ to 7 or 8 hours. Palliative treatment has little effect and dilatation under anæsthesia is often required. The method described is an ambulatory one, and all that is necessary is to inject about 0·25 c.cm. of the solution superficially under the external half of the fissure. Pure ichthyol is applied to the surface. The injection is painful and must be done rapidly; a very fine needle is required. The injection may have to be repeated at intervals of 2–3 days. In Bensaude's small series of about 20 cases all the patients benefited by the treatment and 11 lost their anal symptoms; in 9 slight pain persisted at defæcation. In at least 7 of the cases the fissure was anatomically cured. The defect of Graham's method which has impressed English surgeons is the pain it causes. W. B. Gabriel[2] says that good relaxation of the sphincter can be obtained by injecting a preparation called A.B.A. which is prepared for him by Messrs. Allen and Hanburys and is a 3 per cent. solution of anæsthesin with benzyl alcohol 5 per cent. and ether 10 per cent. in sterilised olive oil. Perhaps a combination of these methods would give satisfactory results.

"PERPLEXED" writes:—I should be much obliged if some of your readers could suggest some cheap absorbent material for a patient of mine with an artificial opening, following operation of diverticulitis, to absorb the fæces, as she has to use large quantities of wool.

[1] Bensaude, R., Cain, A., and Lièvre, J. A.: Bull. et Mém. de la Soc. Méd. des Hôp. de Paris, 1930, xlvi., 13.

[2] Brit. Med. Jour., 1929, i., 1070.